1984
ALBERTA HOUSE COST COMPARISON STUDY

Executive Summary

Single Detached Dwelling
24 Unit
Walk-up Apartment

Alberta
DEPARTMENT OF HOUSING

1984 ALBERTA HOUSE COST COMPARISON STUDY

Executive Summary

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PREFACE

The main purpose of the 1984 Alberta House Cost Comparison Study is to provide cost estimates of the 1984 hard construction costs of a prototypical single-detached dwelling and a 24-unit walk-up apartment in nine urban centres in this Province.

The study also compares 1984 residential construction costs of the single-detached dwelling and the apartment with those of previous years in the selected urban centres studied. Most emphasis is given to a comparison of 1984 and 1983 costs and the study includes an analysis of these differences.

The Alberta Department of Housing has commissioned similar studies for the past seven years. The 1984 study has been carried out by Hanscomb Consultants Inc. and has been documented in three reports:

1984 Alberta House Cost Comparison Study: Executive Summary
1984 Alberta House Cost Comparison Study: Single-Detached Dwelling
1984 Alberta House Cost Comparison Study: Walk-Up Apartment

Additional copies of any of these reports can be ordered from:

ALBERTA DEPARTMENT OF HOUSING
Research and Development Branch
10050 - 112 Street
Edmonton, Alberta
T5K 2J1

1.0 INTRODUCTION

1.0 INTRODUCTION

1.1 Objectives

The objectives of the 1984 Alberta House Cost Comparison Study are as follows:

1. To determine 1984 residential construction costs in selected urban centres in Alberta.
2. To determine reasons for differences in residential construction costs in the selected centres.
3. To compare 1984 residential construction costs with those of previous years.

1.2 Scope of Work

The 1984 Alberta House Cost Comparison Study examines the construction costs of a typical single-detached dwelling and a twenty-four unit walk-up apartment building.

The study has been documented in three reports: an Executive Summary, a report on a typical single-detached dwelling and a report on a walk-up apartment. This report is the Executive Summary.

The study examines building construction costs in the following centres:

1. Edmonton
2. Calgary
3. Red Deer
4. Fort McMurray
5. Grande Prairie
6. Hinton
7. Lethbridge
8. Medicine Hat
9. Lloydminster

1.0 INTRODUCTION

1.2 Scope of Work (continued)

The cost analysis for both the single-detached dwelling and the walk-up apartment block examines the building construction cost differences between each of the centres and highlights the reasons for those differences with reference to such factors as:

a) material costs,
b) labour costs, and
c) building features and inclusions.

The cost estimates of the single-detached dwelling for each centre include all structural, finishing, mechanical and electrical work as shown on the drawings and included in the specifications, and site overheads. The estimates exclude the following items:

a) cost of land and site clearance,
b) site servicing costs,
c) site development costs,
d) design fees and expenses,
e) legal fees and expenses,
f) marketing and real estate financing costs,
g) appliances: fridge and stove, and
h) general contractor's overhead and profit.

1.0 INTRODUCTION

1.2 Scope of Work (continued)

The cost estimates of the walk-up apartment block for each centre include all structural, finishing, mechanical and electrical work as shown on the drawings and included in the specifications, site overhead and contractor's overhead and profit. The estimates exclude the following items:

a) cost of land and site clearance,
b) site servicing costs,
c) site development costs,
d) design fees and expenses,
e) legal fees and expenses, and
f) marketing and real estate financing costs.

1.3 Approach

The building construction costs are examined in the report under the headings of labour and material/equipment costs. Labour rates used in the report are either those established by the trade union concerned, or by the market where trade union rates do not apply. In most cases, a realistic assessment of labour rates has been established by examining the circumstances of the particular sub-trade within the building industry. Material prices have been evaluated from building materials supplier lists. Average discounts are applied in order to establish a realistic market price for the materials to contractors.

1.0 INTRODUCTION

1.3 Approach (continued)

The cost data is assembled in trade format and presented in 22 trade categories for the single-detached dwelling and 25 trade categories for the walk-up apartment. The sub-trade operations are combined within each trade category in order to reflect current estimating practice within the industry. Site overhead and general contractor's office overhead and profit are shown separately for the walk-up apartment to indicate the actual site costs.

A computer program was developed in order to collate and present the cost data which were assembled in the nine centres. The quantities and trade descriptions were, initially, established for the prototypical house and apartment block. The cost data applicable to the relevant quantities and trade descriptions for each centre were then processed through the computer.

The cost effects of market forces and building industry conditions are addressed in the 'Findings' section of this report.

1.0 INTRODUCTION

1.4 Findings

Several factors have influenced the residential building market during 1984. Some of the more significant of these are the high unemployment and interest rates, the weak Canadian dollar, out migration, high vacancy rates, and the large number of foreclosures that have taken place. This has resulted in a stagnant economy, influencing the present market conditions in Alberta.

The cost comparisons between 1984 and 1983 indicate fairly stable prices for labour and material costs from 1983 in most centres, with the exceptions of Fort McMurray, Grande Prairie and Hinton. Generally, there is still a surplus supply of labour. Wages have decreased but labour prices are now levelling off. Some material costs, such as concrete, windows, etc., have increased slightly, while others have decreased slightly, resulting in almost unchanged material costs.

In all centres surveyed for this study, residential construction costs have, generally, levelled off in 1984 with the exceptions, again, being Fort McMurray, Grande Prairie and Hinton, where costs increased by 3% to 5%. This is due, mainly, to a slight increase in the residential and non-residential construction volume in these centres, whereas all other centres had drastic decreases in volume.

The graphic presentation of construction costs in Tables SD.7 (Comparative Total Building Cost Graphs 1979-1984 for the single-detached dwelling), and WA.8 (Comparative Total Building Cost Graphs 1980-1984 for walk-up apartment) highlight the levelling off of construction costs with the exception of the three centres mentioned previously. Expressed in nominal dollars, apartment costs have dropped substantially to levels below the 1980 costs, and single-detached dwelling costs are close to those of 1980.

1.0 INTRODUCTION

1.4 Findings (continued)

Expressed in nominal dollars, the average cost for the single-detached dwelling is $ 39,757 which is higher than the 1980 average of $ 38,991 by 2%. Expressed in 1984 inflation adjusted dollars, it is 24.5% lower than the 1980 average of $ 52,627.

Expressed in nominal dollars, the average cost per unit for the walk-up apartment is $ 27,420, which is 7.2% lower than the 1980 average of $ 29,555. Expressed in 1984 inflation adjusted dollars, however, it is 31.3% lower than the 1980 average of $ 39,891.

In the past, appliances have been included in the cost of single-detached dwellings but are currently included in only 10% to 20% of new homes. The 1984 single-detached dwelling costs exclude an allowance for appliances (fridge and stove) of approximately $ 945. The 1984 single-detached dwelling costs include 38 x 140 mm (2" x 6") exterior wall studding with RSI 3.5 (R20) batt insulation in lieu of the 38 x 89 mm (2" x 4") exterior wall studding with RSI 2.1 (R12) batt insulation (approximately $866). The above two significant changes from the 1983 study will not have a major effect in comparison with last year's and previous years' costs, as the deletion of the appliances matches in price the additional cost of the increased insulation in the exterior walls.

2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD . 1: Total Building Costs

ITEM	EDMONTON		CALGARY		RED DEER		FORT McMURRAY		GRANDE PRAIRIE		HINTON		LETHBRIDGE		MEDICINE HAT		LLOYD- ** MINSTER	
Element	total $	%	total $	%	total $	%	total $	%	total $	%	total $	%	total $	%	total $	%	total $	%
Labour	9,716	27.2	9,567	26.9	10,392	28.4	13,937	30.9	12,258	28.8	12,062	29.1	11,328	29.2	11,750	29.6	12,347	29.2
Material*	26,048	72.8	25,962	73.1	26,148	71.6	31,192	69.1	30,343	71.2	29,359	70.9	27,405	70.8	27,993	70.4	30,004	70.8
Total 1984	35,764	100.0	35,529	100.0	36,540	100.0	45,129	100.0	42,601	100.0	41,421	100.0	38,733	100.0	39,743	100.0	42,351	100.0
Cost per m2	$357.64		$355.29		$365.40		$451.29		$426.01		$414.21		$387.33		$397.43		$423.51	
Cost per SF	$33.24		$33.02		$33.96		$41.94		$39.59		$38.50		$36.00		$36.94		$39.36	
Total 1983	$35,723		$34,953		$36,941		$43,021		$40,449		$39,676		$38,427		$39,326		-	
Change From 1983	.1%		1.6%		-1.1%		4.9%		5.3%		4.4%		.8%		1.1%		-	

NOTES : * Material cost includes 38x140mm (2x6) exterior wall and excludes fridge and stove

** Lloydminster was not included in 1983 study

2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

Table SD, 2: Comparative Cost Ratios *

LOCATION	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER
EDMONTON	1.00	.99	1.02	1.26	1.19	1.16	1.08	1.11	1.19
CALGARY	1.01	1.00	1.03	1.27	1.20	1.17	1.09	1.12	1.19
RED DEER	.98	.97	1.00	1.24	1.17	1.13	1.06	1.09	1.16
FORT McMURRAY	.79	.79	.81	1.00	.94	.92	.86	.88	.94
GRANDE PRAIRIE	.84	.83	.86	1.06	1.00	.97	.91	.93	.99
HINTON	.86	.86	.88	1.09	1.03	1.00	.94	.96	1.02
LETHBRIDGE	.92	.92	.94	1.17	1.10	1.07	1.00	1.03	1.09
MEDICINE HAT	.90	.89	.92	1.13	1.07	1.04	.97	1.00	1.06
LLOYD-MINSTER	.84	.84	.86	1.07	1.01	.98	.91	.94	1.00

* Entries refer to the ratio of the price for a city in the top row of the table divided by a price for the city listed in the column.

2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

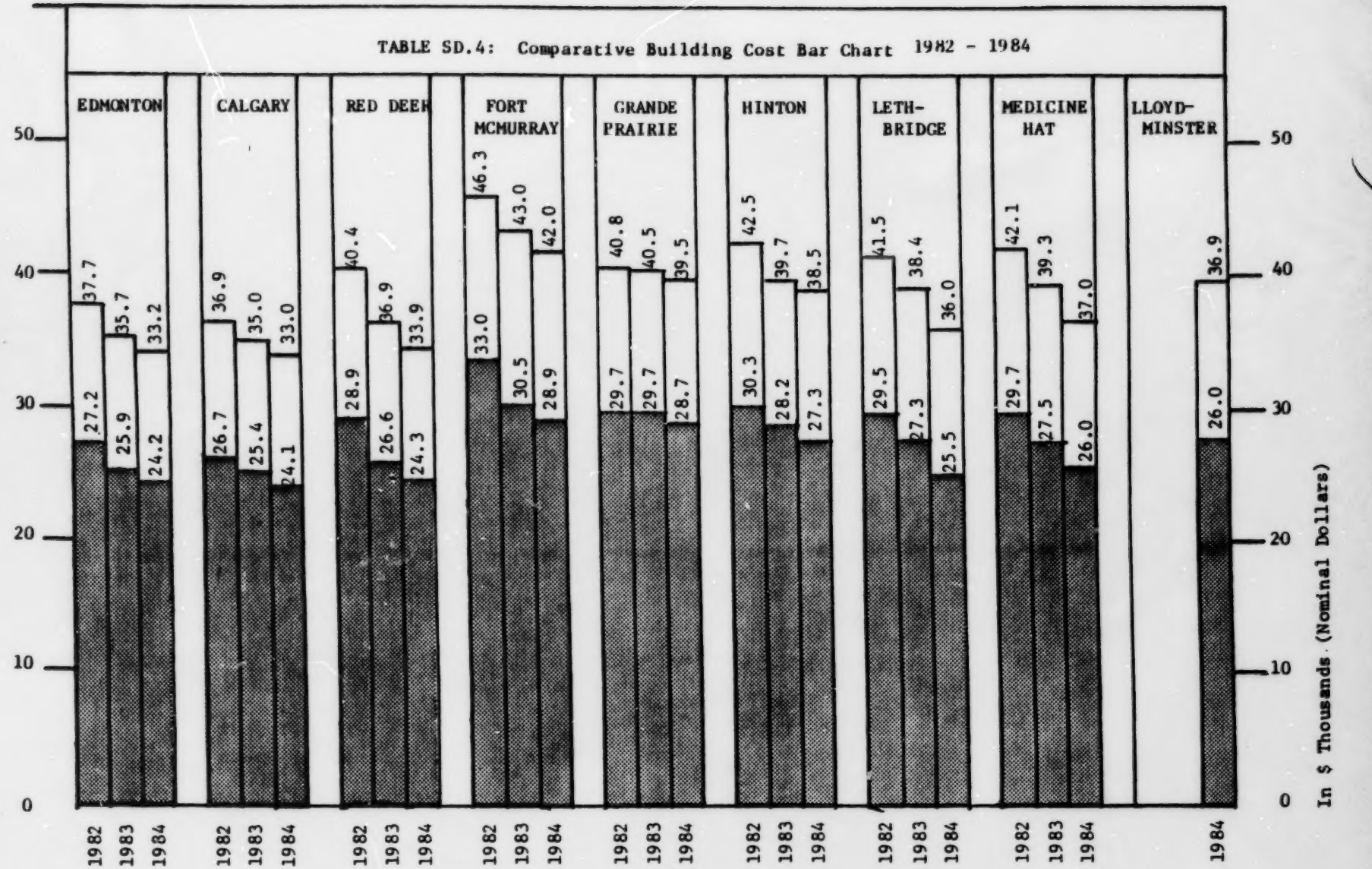
Table SD. 3: Comparative Cost Table 1983 - 1984

ITEM	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-** MINSTER
Labour Cost									
1984	$9,716	$9,567	$10,392	$13,937	$12,258	$12,062	$11,328	$11,750	$12,347
1983	$9,812	$9,559	$10,290	$12,528	$10,750	$11,557	$11,177	$11,907	-
Difference	$-96	$8	$102	$1,409	$1,508	$505	$151	$-157	-
% Difference	-1.0%	.1%	1.0%	11.2%	14.0%	4.4%	1.4%	-1.3%	-
Materials * Cost									
1984	$26,048	$25,962	$26,148	$31,192	$30,343	$29,359	$27,405	$27,993	$30,004
1983	$25,911	$25,394	$26,651	$30,493	$29,699	$28,119	$27,250	$27,419	-
Difference	$137	$568	$-503	$699	$644	$1,240	$155	$574	-
% Difference	.5%	2.2%	-1.9%	2.3%	2.2%	4.4%	.6%	2.1%	-
Total Cost									
1984	$35,764	$35,529	$36,540	$45,129	$42,601	$41,421	$38,733	$39,743	$42,351
1983	$35,723	$34,953	$36,941	$43,021	$40,449	$39,676	$38,427	$39,326	-
Difference	$41	$576	$-401	$2,108	$2,152	$1,745	$306	$417	-
% Difference	.1%	1.6%	-1.1%	4.9%	5.3%	4.4%	.8%	1.1%	-

NOTE : * Material cost includes 38x140mm exterior wall and excludes fridge and stove

** Lloydminster was not included in 1983 study

2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING



2.0 SUMMARY OF FINDINGS FOR THE SINGLE - DETACHED DWELLING

Table SD .5: Comparative Total Building Costs 1979 - 1984*

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON **	LETHBRIDGE	MEDICINE HAT	LLOYD- *** MINSTER
1979	$32,057	$29,545	$28,810	$31,431	$37,364	$34,348	-	$30,651	$32,249	-
1980	$38,991	$36,239	$34,964	$37,206	$45,747	$42,143	-	$38,055	$38,586	-
1981	$42,304	$39,925	$39,578	$40,159	$48,339	$44,655	-	$41,910	$41,561	-
1982	$41,029	$37,732	$36,894	$40,432	$46,257	$40,814	$42,453	$41,546	$42,102	-
1983	$38,565	$35,723	$34,953	$36,941	$43,021	$40,449	$39,676	$38,427	$39,326	-
1984	$39,757	$35,764	$35,529	$36,540	$45,129	$42,601	$41,421	$38,733	$39,743	$42,351

NOTES :
- * Expressed in nominal dollars
- ** Hinton was not included in the 1979, 1980 and 1981 studies
- *** Lloydminster was not included in the 1979 through 1983 studies

2.0 SUMMARY OF FINDINGS FOR THE SINGLE - DETACHED DWELLING

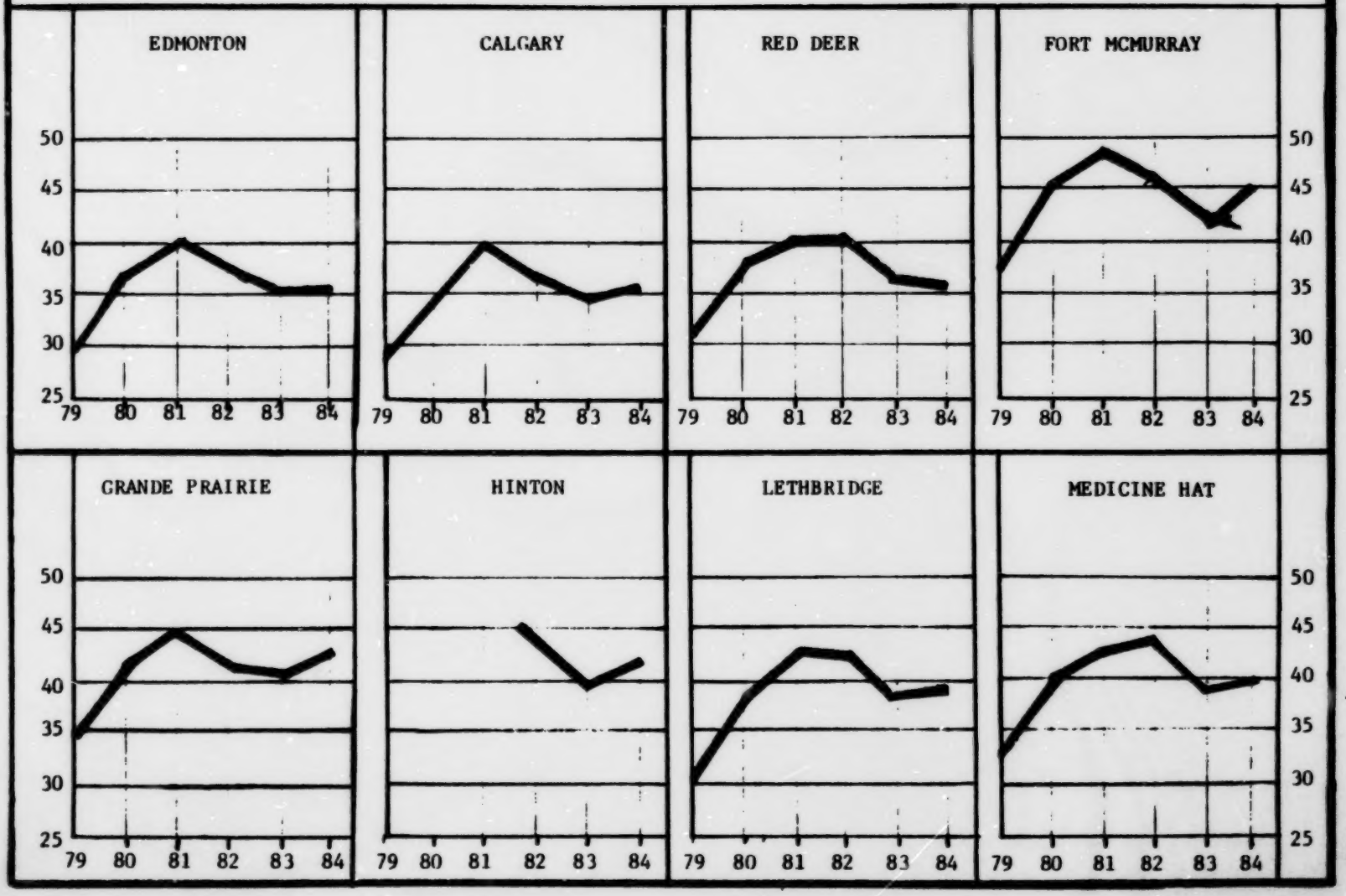
Table SD .6: Comparative Cost per Square Foot of Gross Floor Area 1979 - 1984*

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON **	LETHBRIDGE	MEDICINE HAT	LLOYD- *** MINSTER
1979	$29.78	$27.45	$26.76	$29.20	$34.71	$31.91	-	$28.47	$29.96	-
1980	$36.22	$33.66	$32.48	$34.56	$42.50	$39.15	-	$35.35	$35.85	-
1981	$39.30	$37.09	$36.77	$37.30	$44.91	$41.48	-	$38.93	$38.61	-
1982	$38.10	$35.05	$34.27	$37.56	$42.97	$37.82	$39.44	$38.60	$39.11	-
1983	$35.83	$33.19	$32.47	$34.32	$39.97	$37.58	$36.86	$35.70	$36.53	-
1984	$36.95	$33.24	$33.02	$33.96	$41.94	$39.59	$38.50	$36.00	$36.94	$39.36

NOTES :
* Expressed in nominal dollars
** Hinton was not included in the 1979, 1980 and 1981 studies
*** Lloydminster was not included in the 1979 through 1983 studies

2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD.7: Comparative Total Building Cost Graphs 1979-1984



2.0 SUMMARY OF FINDINGS FOR THE SINGLE - DETACHED DWELLING

Table SD. 8: Comparative Total Building Costs 1979 - 1984* Inflation Adjusted Dollars

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON **	LETHBRIDGE	MEDICINE HAT	LLOYD- *** MINSTER
1979	$45,856	$42,758	$41,138	$44,880	$53,352	$49,046	-	$43,767	$46,048	-
1980	$52,627	$48,912	$47,191	$50,217	$61,745	$56,880	-	$51,363	$52,080	-
1981	$51,560	$48,661	$48,238	$48,946	$58,916	$54,426	-	$51,080	$50,655	-
1982	$47,056	$43,275	$42,314	$46,372	$53,052	$46,810	$48,689	$47,649	$48,288	-
1983	$39,799	$36,866	$36,071	$38,123	$44,398	$41,743	$40,946	$39,657	$40,584	-
1984	$39,757	$35,764	$35,529	$36,540	$45,129	$42,601	$41,421	$38,733	$39,743	$42,351

NOTES : * 1.Expressed in 1984 inflation adjusted dollars

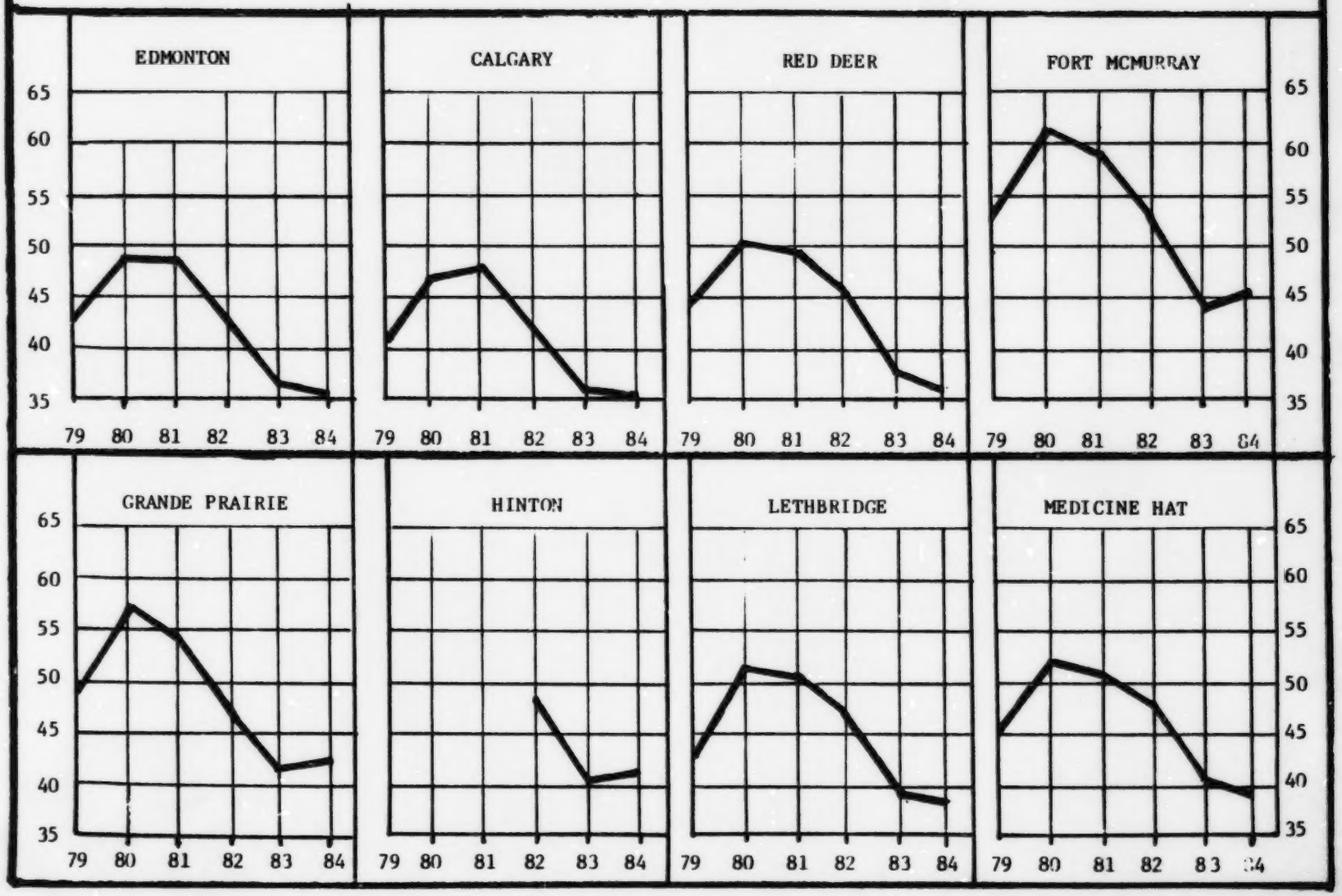
2.Inflation adjustments have been based on the Residential Building Construction Input Price Index for the Prairie Provinces as published by Statistics Canada

** Hinton was not included in the 1979,1980 and 1981 studies

*** Lloydminster was not included in 1979 through 1983 studies

2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TAB'E SD.9: Comparative Total Building Cost Graph 1979-1984 - Inflation Adjusted Dollars



2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

Table SD.10: Trade Division Cost Summaries

LOCATION	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER
Divisions									
1. Excavation	786	1,065	811	1,162	952	890	1,072	864	1,093
2. Concrete	4,477	4,516	4,749	6,491	6,037	5,609	4,702	5,357	5,780
3. Dampproofing	265	276	325	378	374	301	317	335	344
4. Siding	2,388	2,372	2,433	2,904	2,852	2,723	2,737	2,759	2,738
5. Roofing	932	947	938	1,161	1,140	1,036	1,116	1,199	1,077
6. Carpentry - Rough	6,709	6,738	7,032	8,686	8,211	8,586	7,312	7,853	8,251
7. Carpentry - Finish	625	628	628	734	714	641	648	645	674
8. Windows and Glazing	1,624	1,628	1,662	1,730	1,724	1,676	1,674	1,674	1,697
9. Sealants	52	52	52	58	57	55	52	52	55
10. Doors	972	910	972	1,117	1,110	1,086	1,000	979	1,074
11. Hardware	172	172	172	191	191	186	183	181	190
12. Ceramic Tiling	140	130	150	200	199	195	148	153	198
SUB-TOTAL	19,142	19,434	19,924	24,812	23,561	22,984	20,961	22,051	23,171

2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

Table SD.10: Trade Division Cost Summaries (cont'd)

LOCATION	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER
Divisions									
13. Wallboard	3,361	3,181	3,327	4,415	4,147	3,716	3,416	3,663	4,365
14. Flooring	1,378	1,315	1,358	1,518	1,476	1,433	1,361	1,361	1,403
15. Painting	1,310	1,268	1,430	1,637	1,537	1,601	1,584	1,583	1,599
16. Fitting	2,169	2,165	2,179	2,555	2,415	2,262	2,392	2,391	2,462
17. Specialties	166	166	162	192	190	175	169	169	176
18. Appliances	100	100	100	100	100	100	100	100	100
19. Plumbing	2,160	2,000	2,000	2,600	2,425	2,000	2,000	2,100	2,400
20. Heating	1,450	1,400	1,410	1,950	1,850	2,000	1,800	1,750	1,900
21. Electrial	1,678	1,650	1,800	2,500	2,050	2,300	2,100	1,725	1,925
22. Site Overhead	2,850	2,850	2,850	2,850	2,850	2,850	2,850	2,850	2,850
TOTAL	35,764	35,529	36,540	45,129	42,601	41,421	38,733	39,743	42,351

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

2.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA . 1: Total Building Costs

ITEM	EDMONTON		CALGARY		RED DEER		FORT McMURRAY		GRANDE PRAIRIE		HINTON		LETHBRIDGE		MEDICINE HAT		LLOYD-MINSTER	
Element	total $	%	total $	%	total $	%	total $	%	total $	%	total $	%	total $	%	total $	%	total $	%
Labour	221,594	36.9	221,078	37.4	238,509	38.2	289,846	39.6	264,057	38.0	261,210	37.7	241,448	38.2	254,540	39.0	265,174	37.8
Material	378,445	63.1	370,783	62.6	385,833	61.8	442,149	60.4	430,737	62.0	432,478	62.3	390,673	61.8	397,474	61.0	436,727	62.2
Total 1984	600,039	100.0	591,861	100.0	624,342	100.0	731,995	100.0	694,794	100.0	693,688	100.0	632,121	100.0	652,014	100.0	701,901	100.0
Cost per m2	$323.12		$318.72		$336.21		$394.18		$374.15		$373.55		$340.40		$351.11		$377.98	
Cost per SF	$30.02		$29.61		$31.23		$36.62		$34.76		$34.70		$31.62		$32.62		$35.11	
Total per Apt. 1984	25,002		24,661		26,014		30,500		28,950		28,904		26,338		27,167		29,246	
Total 1983	$603,046		$592,174		$623,852		$712,262		$669,574		$674,046		$632,872		$647,845		-	
Total per Apt. 1983	25,127		24,674		25,994		29,678		27,899		28,085		26,370		26,994		-	
Change from 1983	-.5%		-.1%		.1%		2.8%		3.8%		2.9%		-.1%		.6%		-	

2.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

Table WA. 2: Comparative Cost Ratios [a]

LOCATION	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER
EDMONTON	1.00	.99	1.04	1.22	1.16	1.16	1.05	1.09	1.17
CALGARY	1.01	1.00	1.05	1.24	1.17	1.17	1.07	1.10	1.19
RED DEER	.96	.95	1.00	1.17	1.11	1.11	1.01	1.04	1.12
FORT McMURRAY	.82	.81	.85	1.00	.95	.95	.86	.89	.96
GRANDE PRAIRIE	.86	.85	.90	1.05	1.00	1.00	.91	.94	1.01
HINTON	.87	.85	.90	1.06	1.00	1.00	.91	.94	1.01
LETHBRIDGE	.95	.94	.99	1.16	1.10	1.10	1.00	1.03	1.11
MEDICINE HAT	.92	.91	.96	1.12	1.07	1.06	.97	1.00	1.08
LLOYD-MINSTER	.85	.84	.89	1.04	.99	.99	.90	.93	1.00

[a] Entries refer to the ratio of the price for a city in the top row of the table divided by a price for the city listed in the column.

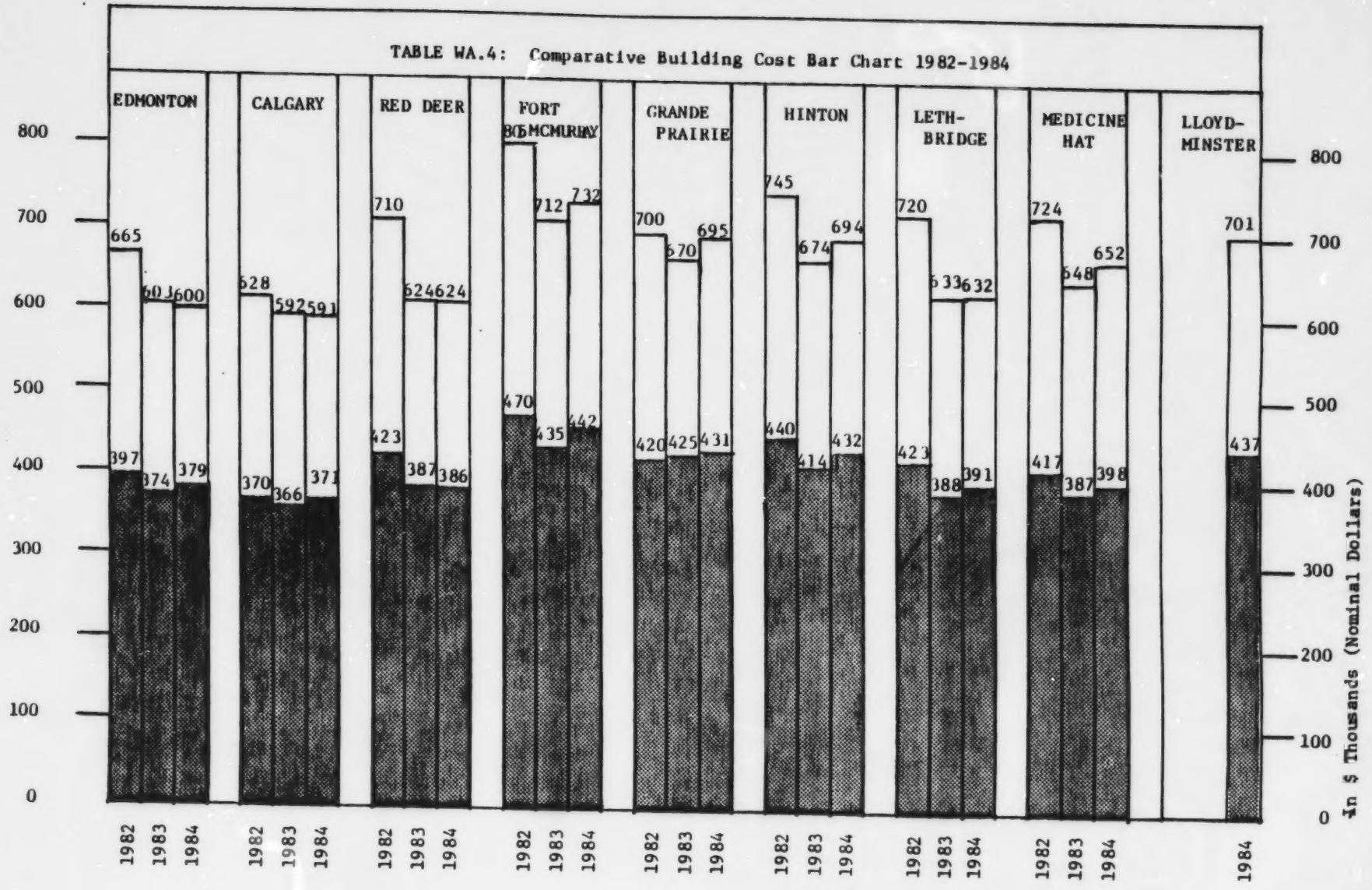
2.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

Table WA. 3: Comparative Cost Table 1983 - 1984

ITEM	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD- * MINSTER
Labour Cost									
1984	$221,594	$221,078	$238,509	$289,846	$264,057	$261,210	$241,448	$254,540	$265,174
1983	$228,737	$226,059	$236,896	$277,536	$245,108	$259,910	$244,680	$260,282	-
Difference	$-7,143	$-4,981	$1,613	$12,310	$18,949	$1,300	$-3,232	$-5,742	-
% Difference	-3.1%	-2.2%	.7%	4.4%	7.7%	.5%	-1.3%	-2.2%	-
Materials Cost									
1984	$378,445	$370,783	$385,833	$442,149	$430,737	$432,478	$390,673	$397,474	$436,727
1983	$374,309	$366,115	$386,956	$434,726	$424,466	$414,136	$388,192	$387,563	-
Difference	$4,136	$4,668	$-1,123	$7,423	$6,271	$18,342	$2,481	$9,911	-
% Difference	1.1%	1.3%	-.3%	1.7%	1.5%	4.4%	.6%	2.6%	-
Total Cost									
1984	$600,039	$591,861	$624,342	$731,995	$694,794	$693,688	$632,121	$652,014	$701,901
1983	$603,046	$592,174	$623,852	$712,262	$669,574	$674,046	$632,872	$647,845	-
Difference	$-3,007	$-313	$490	$19,733	$25,220	$19,642	$-751	$4,169	-
% Difference	-.5%	-.1%	.1%	2.8%	3.8%	2.9%	-.1%	.6%	-

NOTES : *Lloydminster was not included in 1983 study

2.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT



2.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

Table WA .5: Comparative Total Building Costs 1980 - 1984*

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON **	LETHBRIDGE	MEDICINE HAT	LLOYD- *** MINSTER
1980	$709,337	$660,295	$670,183	$685,282	$811,898	$736,435	-	$703,808	$697,459	-
1981	$756,703	$714,492	$719,003	$733,211	$861,728	$784,409	-	$740,084	$743,992	-
1982	$712,232	$665,273	$627,844	$710,485	$805,134	$700,436	$744,686	$720,280	$723,716	-
1983	$644,459	$603,046	$592,174	$623,852	$712,262	$669,574	$674,046	$632,872	$647,845	-
1984	$658,084	$600,039	$591,861	$624,342	$731,995	$694,794	$693,688	$632,121	$652,014	$701,901

NOTES : * Expressed in nominal dollars

** Hinton was not included in the 1980 and 1981 studies

*** Lloydminster was not included in the 1980 through 1983 studies

2.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

Table WA .6: Comparative Cost per Square Foot of Gross Floor Area 1980-1984 *

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON **	LETHBRIDGE	MEDICINE HAT	LLOYD- *** MINSTER
1980	$35.48	$33.04	$33.52	$34.28	$40.61	$36.84	-	$35.20	$34.89	-
1981	$37.86	$35.75	$35.97	$36.68	$43.11	$39.24	-	$37.03	$37.22	-
1982	$35.63	$33.28	$31.41	$35.54	$40.28	$35.04	$37.26	$36.03	$36.21	-
1983	$32.24	$30.17	$29.63	$31.21	$35.63	$33.50	$33.72	$31.66	$32.41	-
1984	$32.92	$30.02	$29.61	$31.23	$36.62	$34.76	$34.70	$31.62	$32.62	$35.11

NOTES : * Expressed in nominal dollars

** Hinton was not included in the 1980 and 1981 studies

*** Lloydminster was not included in the 1980 through 1983 studies

2.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

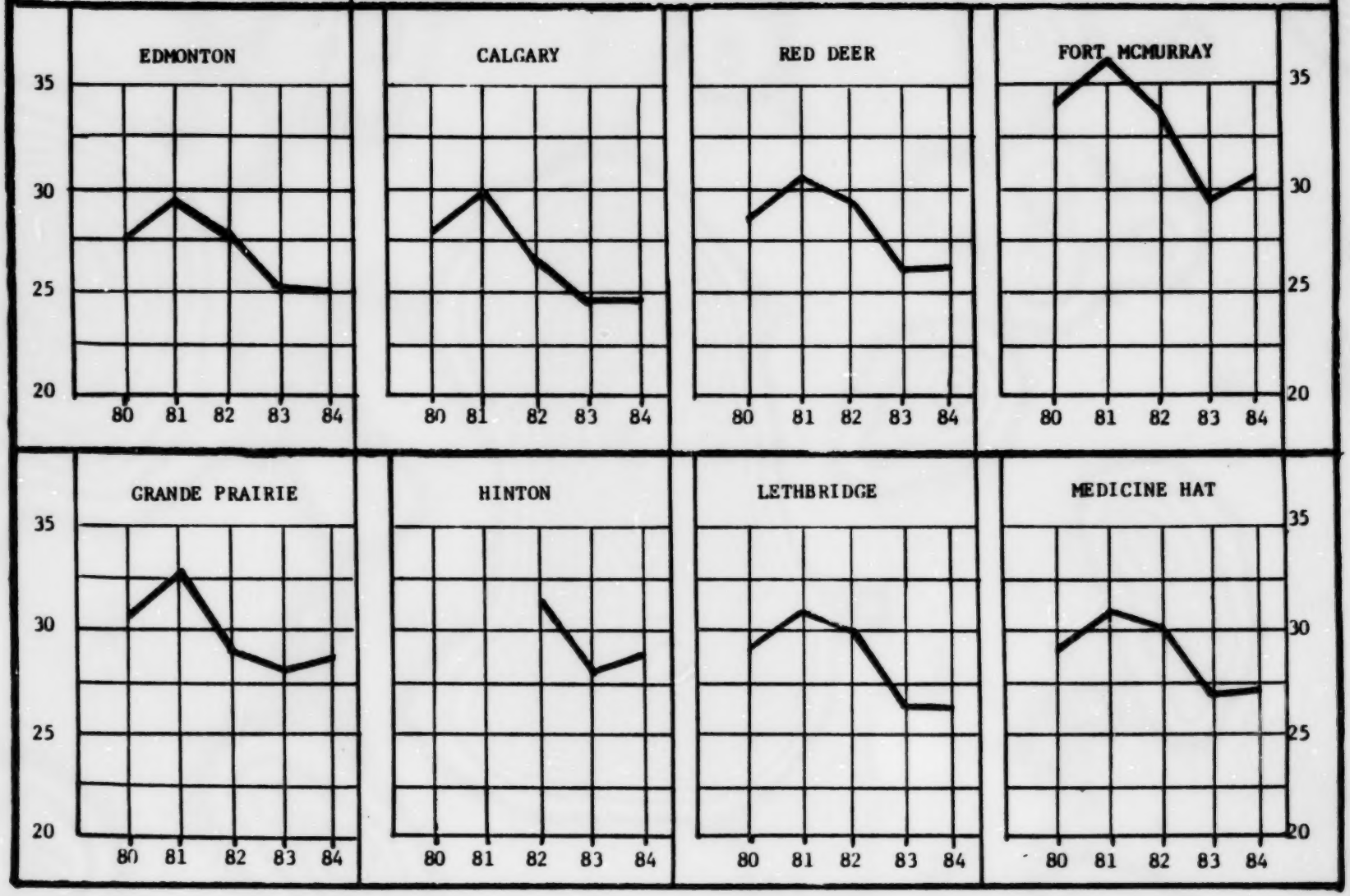
Table MA. 7: Comparative Cost per Apartment Unit 1980-1984 *

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON **	LETHBRIDGE	MEDICINE HAT	LLOYD *** MINSTER
1980	$29,555	$27,512.00	$27,924.00	$28,553.00	$33,829.00	$30,684.00	-	$29,325.00	$29,061.00	-
1981	$31,529	$29,771.00	$29,958.00	$30,550.00	$35,905.00	$32,684.00	-	$30,837.00	$31,000.00	-
1982	$29,677	$27,720.00	$26,160.00	$29,604.00	$33,547.00	$29,185.00	$31,029.00	$30,012.00	$30,155.00	-
1983	$26,853	$25,127.00	$24,674.00	$25,994.00	$29,678.00	$27,899.00	$28,085.00	$26,370.00	$26,994.00	-
1984	$27,420	$25,002.00	$24,661.00	$26,014.00	$30,500.00	$28,950.00	$28,904.00	$26,338.00	$27,167.00	$29,246.00

NOTES :
* Expressed in nominal dollars
** Hinton was not included in the 1980 and 1981 studies
*** Lloydminster was not included in the 1980 through 1983 studies

2.0 SUMMARY OF FINDINGS FOR WALK-UP APARTMENT

TABLE WA.8: COMPARATIVE APARTMENT UNIT COST GRAPHS 1980-1984



2.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

Table WA. 9: Comparative Cost per Apartment Unit 1980-1984 *Inflation Adjusted Dollars

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON **	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER ***
1980	$39,891	$37,133	$37,689	$38,538	$45,659	$41,414	-	$39,579	$39,224	-
1981	$38,428	$36,285	$36,513	$37,234	$43,761	$39,835	-	$37,584	$37,783	-
1982	$34,101	$31,792	$30,519	$33,953	$38,475	$33,472	$35,587	$34,421	$34,585	-
1983	$27,712	$25,931	$25,464	$26,825	$30,628	$28,792	$28,984	$27,214	$27,858	-
1984	$27,420	$25,002	$24,661	$26,014	$30,500	$28,950	$28,904	$26,338	$27,167	$29,246

NOTES * 1. Expressed in 1984 inflation adjusted dollars

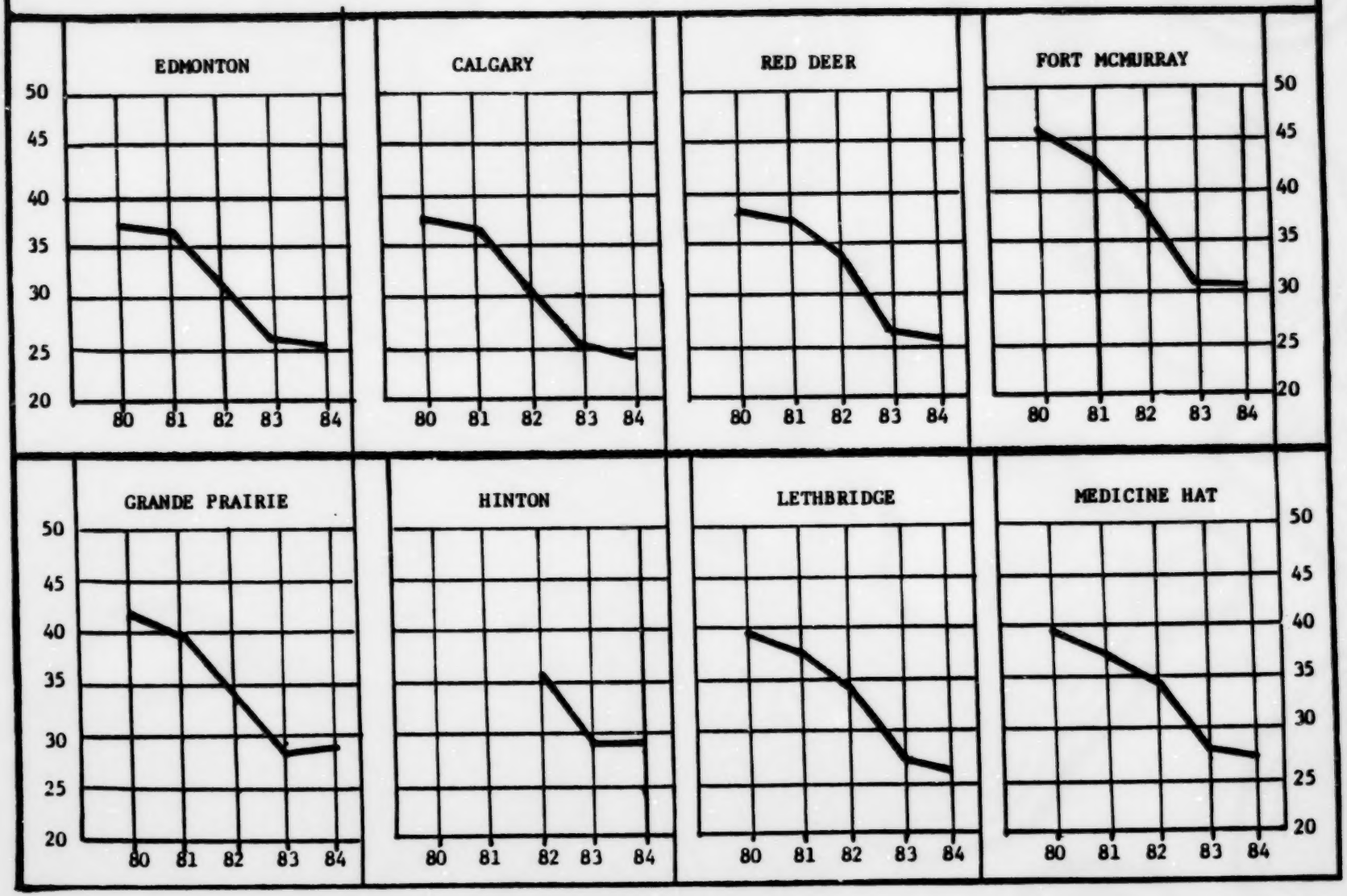
2. Inflation adjustments have been based on the Residential Building Construction Input Price Index for the Prairie Provinces as published by Statistics Canada

** Hinton was not included in the 1980 and 1981 studies

*** Lloydminster was not included in 1980 through 1983 studies

2.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE WA.10: Comparative Apartment Unit Cost Graphs 1980-1984 - Inflation Adjusted Dollars



2.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENTS

Table WA.11: Trade Division Cost Summaries

LOCATION	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER
Divisions									
1. Excavation	2,402	3,435	2,542	3,696	3,199	2,713	3,469	2,922	3,467
2. Concrete	15,476	15,367	16,811	22,303	20,260	19,100	16,262	18,294	20,066
3. Dampproofing	603	629	741	863	853	688	724	767	787
4. Siding	13,123	12,893	12,986	17,813	17,018	17,029	15,491	15,733	17,175
5. Roofing	21,312	22,360	22,576	30,495	24,945	24,776	22,202	22,270	25,171
6. Carpentry - Rough	92,782	94,478	100,585	131,200	119,441	121,879	105,489	115,599	118,484
7. Carpentry - Finish	6,511	6,740	6,501	7,361	6,849	6,942	6,669	6,887	6,953
8. Windows and Glazing	22,059	20,907	23,262	27,373	23,859	23,604	23,640	23,640	23,772
9. Sealants	763	763	763	844	818	797	775	775	799
10. Doors	34,949	32,504	34,989	38,036	39,217	38,941	36,976	35,845	38,711
11. Hardware	3,006	3,006	3,006	3,180	3,175	3,198	3,145	3,125	3,199
12. Ceramic Tiling	3,836	3,562	4,096	5,480	5,439	5,339	4,055	4,192	5,412
SUB-TOTAL	216,822	216,644	228,858	288,644	265,073	265,006	238,897	250,049	263,996

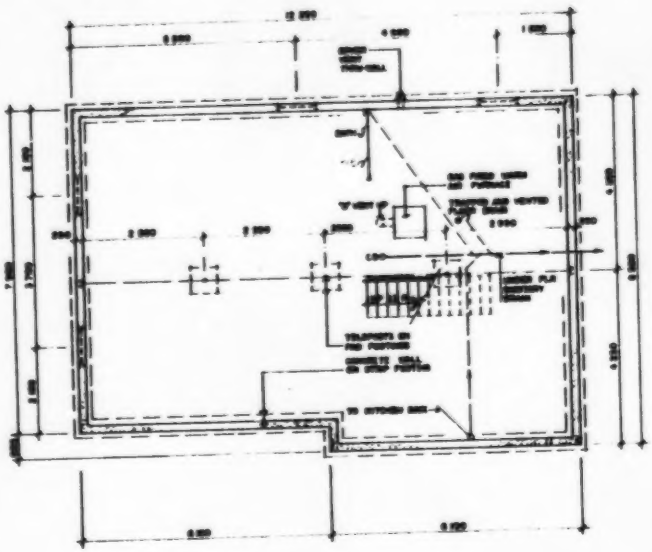
2.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENTS

Table WA.11: Trade Division Cost Summaries (cont'd)

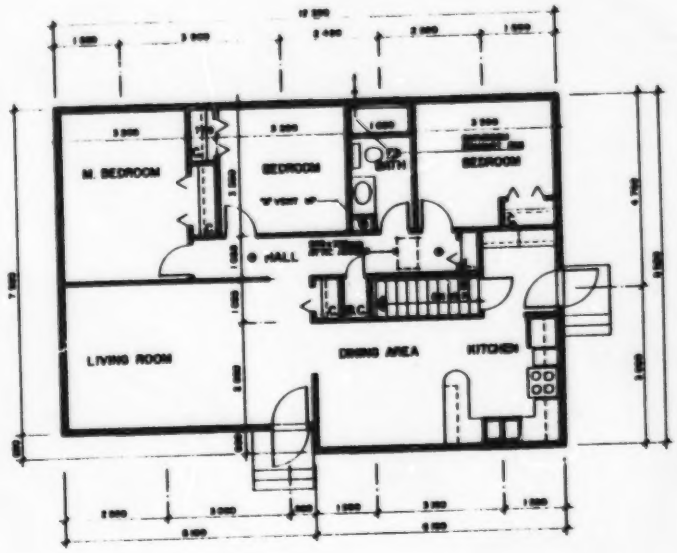
LOCATION	EDMONTON	CALGARY	RED DEER	FORT MCMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER
Divisions									
13. Wallboard	45,809	43,197	45,626	57,394	54,470	49,721	45,978	49,277	55,690
14. Flooring	41,439	40,264	43,386	49,410	45,328	45,421	44,022	44,210	44,955
15. Painting	18,297	17,628	19,773	22,225	20,795	22,003	21,534	22,182	22,038
16. Fitting	37,429	37,389	37,624	44,116	41,776	38,824	41,351	41,349	42,724
17. Specialties	15,511	15,511	15,487	17,776	17,158	16,599	16,151	16,151	16,600
18. Appliances	27,596	27,596	27,620	28,918	28,842	28,402	28,084	28,084	28,186
19. Plumbing	52,992	49,104	52,176	57,024	54,864	59,112	49,464	49,464	59,112
20. HEATING	27,552	27,864	28,296	36,192	36,192	36,192	28,416	29,496	36,192
21. Ventilation	6,672	6,744	6,720	8,544	8,544	8,544	7,848	7,848	8,544
22. Fire Protection	1,944	1,944	1,944	2,496	2,496	2,496	1,944	1,944	2,496
23. Electrical	39,576	39,576	48,432	50,856	50,856	52,968	40,032	43,560	52,968
24. Site Overhead	45,600	45,600	45,600	45,600	45,600	45,600	45,600	45,600	45,600
Subtotals - 1-24	577,239	569,061	601,542	709,195	671,994	670,888	609,321	629,214	679,101
25. Gnrl. Cntrctr's Overh. & Profit	22,800	22,800	22,800	22,800	22,800	22,800	22,800	22,800	22,800
TOTAL	600,039	591,861	624,342	731,995	694,794	693,688	632,121	652,014	701,901

APPENDIX A

Reduced Drawings Single-Detached Dwelling



BASEMENT / FOUNDATION PLAN



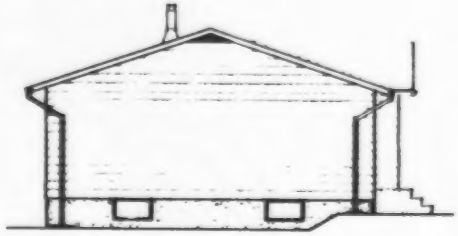
GROUND FLOOR PLAN

● SMOKE DETECTOR, SELF POWERED WITH BATTERIES

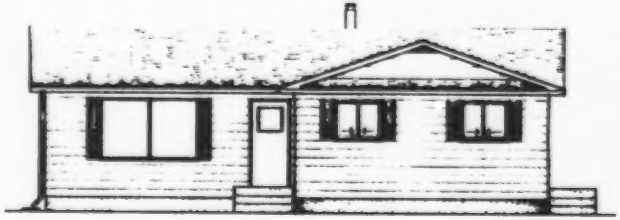
ALBERTA HOUSE COST COMPARISON STUDY

FLOOR PLANS

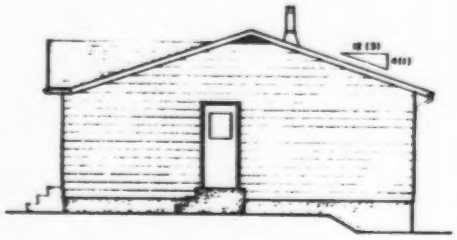
SCALE 1:50



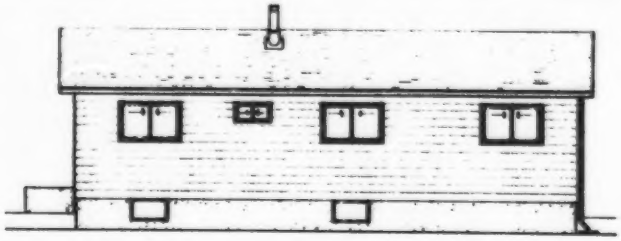
LEFT ELEVATION



FRONT ELEVATION



RIGHT ELEVATION

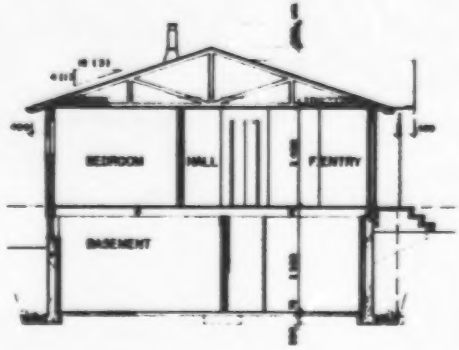


REAR ELEVATION

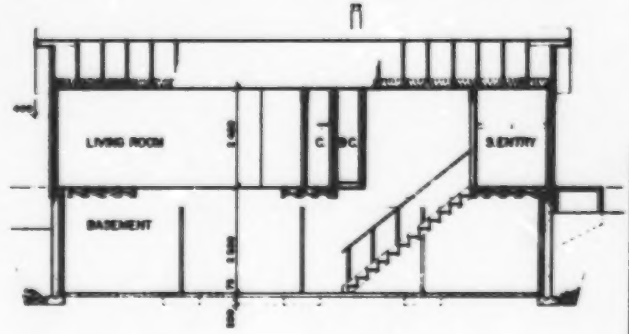
ALBERTA HOUSE COST COMPARISON STUDY

ELEVATIONS

SCALE 1:100



SECTION A



SECTION B

EXTERIOR WALLS

- PREFINISHED ALUMINUM SIDING
- ASPHALT FELT BUILDING PAPER
- 9mm EXT. GRADE PLYWOOD SHEATHING
- 38 x 89mm WOOD STUDS @ 400mm O.C. NO. 2 GR. SPRUCE OR BETTER
- RSI 2.115 BATT INSULATION
- .102mm POLY. VAPOUR BARRIER
- 13mm GYPSUM BOARD TAPED AND SANDED

BASEMENT WALLS

- 2 COATS ASPHALTIC EMULSION DAMPPROOFING
- 200mm - 20MPa POURED CONCRETE REINFORCED
- 38 x 64mm WOOD STRAPPING AT 400mm O.C.
- RSI 1.4 BATT INSULATION
- .102mm POLY VAPOUR BARRIER
- 13mm GYPSUM BOARD TAPED AND SANDED
- 200 x 400 - 20MPa CONC. POURED CONCRETE FOOTING, REINFORCED 100mm DIAMETER PERFORATED PLASTIC WEEPING PIPE
- 900mm MIN. CRUSHED GRAVEL COVER

FLOORS

GROUND

- 9mm PLYWOOD SHEATHING SUB FLOOR
- 19mm PLYWOOD SHEATHING SUB FLOOR UNDERLAY
- 38 x 235mm FLOOR JOISTS AT 400mm O.C. NO. 2 GRADE SPRUCE OR BETTER
- 3 - 38 x 235mm BUILT-UP BEAM NO. 2 GRADE FIR OR BETTER
- 3 - 25mm DIAMETER x 0.75m INSIDE STEEL TELEPOSTS ON 635 x 635 x 200mm THICK CONCRETE POD FOOTINGS. TELEPOSTS FITTED TOP AND BOTTOM WITH 6.35mm THICK STEEL BEARING PLATES. MIN. SIZE TO BE 300 x 300mm TOP PLATE TO MATCH WIDTH OF SUPPORTED BEAM.

BASEMENT

- 75mm - 20MPa POURED CONCRETE SLAB ON GRADE
- .152mm POLY VAPOUR BARRIER
- 250mm SAND OR GRAVEL BED

ROOF

- ASPHALT SHINGLES
- 12mm EXT. GRADE PLYWOOD SHEATHING APPROVED TRUSSES @ 600mm O.C.
- 38 x 89mm NO. 2 GRADE FIR OR BETTER
- RSI 6.0MM CELLUFOAM INSULATION TO ATTIC
- .102mm POLY VAPOUR BARRIER
- 13mm GYPSUM BOARD CEILING

FASCIA

- 25 x 350mm SPRUCE BOARD, PREFINISHED ALUMINUM

SOFFIT

- PREFINISHED ALUMINUM PERFORATED

EAVESTROUGH

- PREFINISHED ALUMINUM GA. .32mm WITH FITTINGS

DOWNSPOUT

- PREFINISHED ALUMINUM GA. .32mm, CORRUGATED, RECTANGULAR WITH FITTINGS

FLASHINGS

GALVANIZED SHEET GA. .457mm AT EAVES, VALLEYS, VENTS, ETC.

STAIRS

FRONT STEPS

- PRECAST CONCRETE WITH SUPPORTING BRACKETS 2100 x 2100 x 600mm - 5 RISERS

SIDE STEPS

- PRECAST CONCRETE WITH SUPPORTING BRACKETS 1200 x 1875 x 600mm - 5 RISERS

BASEMENT

- 38 x 235mm STRINGERS
- 19 x 235mm TREADS
- 6.4mm PLYWOOD RISERS
- 76mm DIAMETER PIPE HANDRAIL WITH BRACKETS

MECHANICAL NOTES

1. ALL GAS FIRED APPLIANCES SHALL BE INSTALLED IN ACCORDANCE WITH "THE GAS PROTECTION ACT AND REGULATIONS PURSUANT TO THAT ACT".
2. PROVIDE ADEQUATE COMBUSTION AIR FOR GAS FIRED FURNACE.
3. ALL DUCTWORK SHALL BE GALVANIZED STEEL IN CONFORMANCE WITH CODE.
4. PROVIDE FRESH AIR DUCT FROM OUTDOORS WITH SUITABLY SIZED FRESH AIR GRILLE AND CONNECT TO COLD RETURN AIR DUCT UPSTREAM OF FURNACE CIRCULATING FAN.
5. ALL HEATING EQUIPMENT SHALL BE SIZED TO MAINTAIN A TEMPERATURE OF +22°C INSIDE AT DESIGN FLOOR WHEN OUTSIDE TEMPERATURE IS -30°C. THE BASEMENT TEMPERATURE MAY BE HELD AT +18°C.

NOTES

1. PROVIDE 500 x 700mm OPENABLE PLYWOOD HATCHWAY.
2. APPLY FLASHING, FULL WIDTH, OVER ALL EXTERIOR WALL OPENINGS.
3. UNOBSTRUCTED VENT AREA OF NOT LESS THAN 1/300 OF INSULATED CEILING AREA.
4. ANCHORAGE SHALL BE PROVIDED BY EMBEDDING THE ENDS OF THE FIRST FLOOR JOISTS IN CONCRETE, OR FASTENING THE SILL PLATE TO THE FOUNDATION WITH NOT LESS THAN 12.7mm DIAMETER ANCHOR BOLTS SPACED NOT MORE THAN 2.4m O.C. SUCH ANCHOR BOLTS SHALL BE EMBEDDED NOT LESS THAN 100mm IN THE FOUNDATION AND SO DESIGNED THAT THEY MAY BE TIGHTENED WITHOUT WITHDRAWING THEM FROM THE FOUNDATION.
5. PROVIDE 50 x 50mm CROSS-BRIDGING OR 19 x 64mm CONTINUOUS STRAPPING AT MID-SPAN OR FLOOR JOISTS.
6. APPLY 0.25mm POLYETHYLENE AT ROOF LEVEL, EXTENDING FROM EDGE OF ROOF 914mm UP ROOF SLOPE.
7. 10mm PLYWOOD ROOF SHEATHING MAY BE USED AS AN ALTERNATIVE TO 12mm PLYWOOD (SEE NOTE 1) IF ALL EDGES ARE SUPPORTED.
8. EAVESTROUGH AND DOWNSPOUTS SHALL CONFORM TO THE REQUIREMENTS OF SUBSECTION 9.27.15 OF THE ALBERTA BUILDING CODE.
9. ALL ELECTRICAL FACILITIES SHALL COMPLY WITH SUBSECTION 9.34 OF THE ALBERTA BUILDING CODE WHERE APPLICABLE.

ALBERTA HOUSE COST COMPARISON STUDY

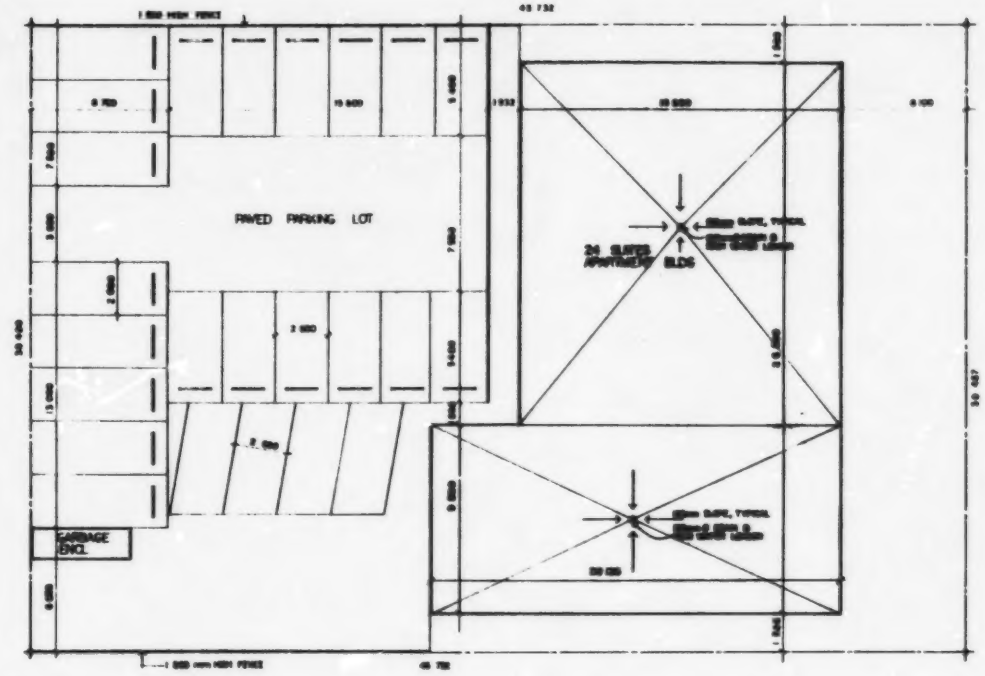
SECTIONS

SCALE 1:50

0 0.5 1 1.5 2 3 4 5 6m

APPENDIX B

Reduced Drawings Walk-up Apartment

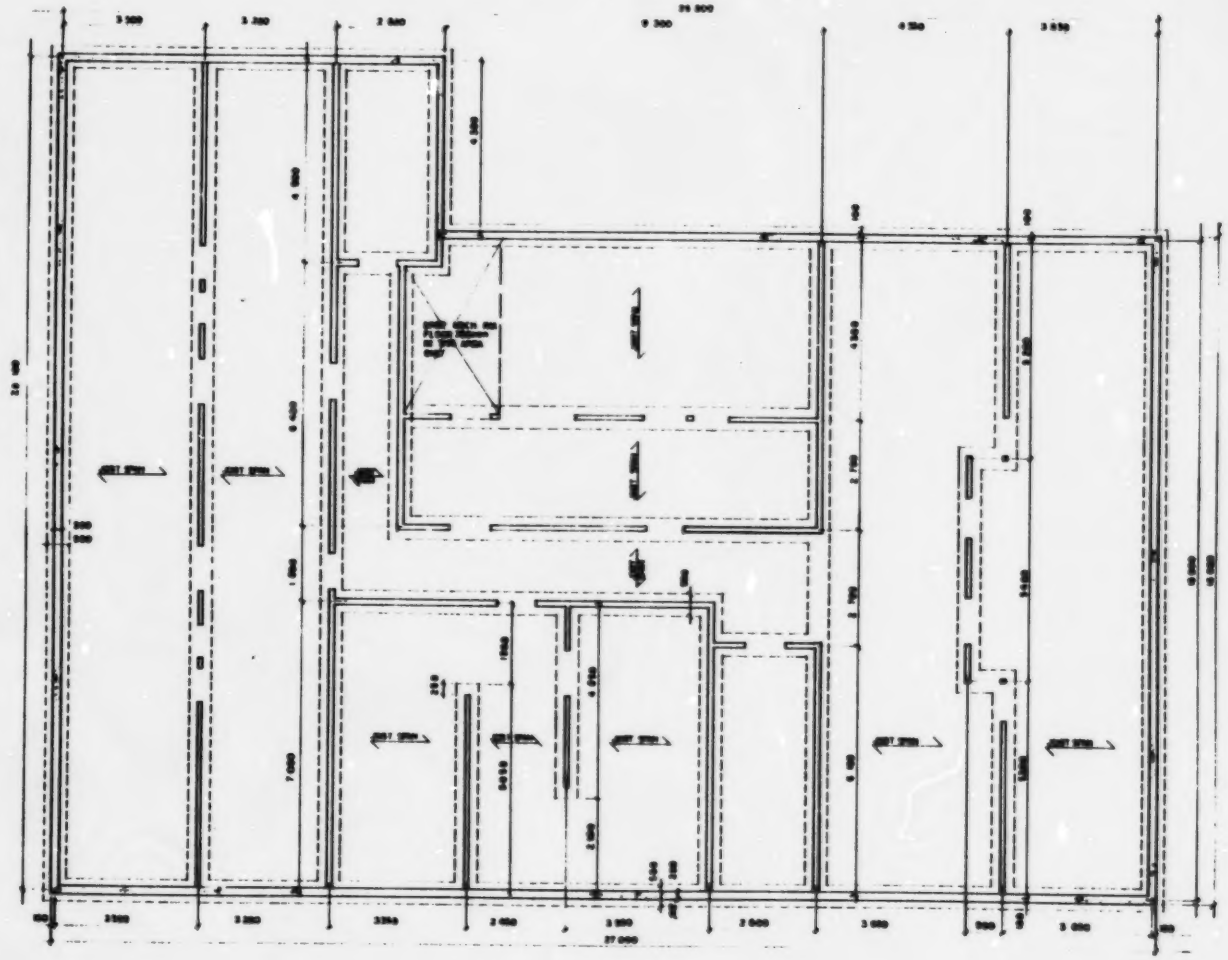


STATISTICS
SITE AREA
SUITES
BUILDING AREA
PARKING

ALBERTA HOUSE COST COMPARISON STUDY

SITE PLAN

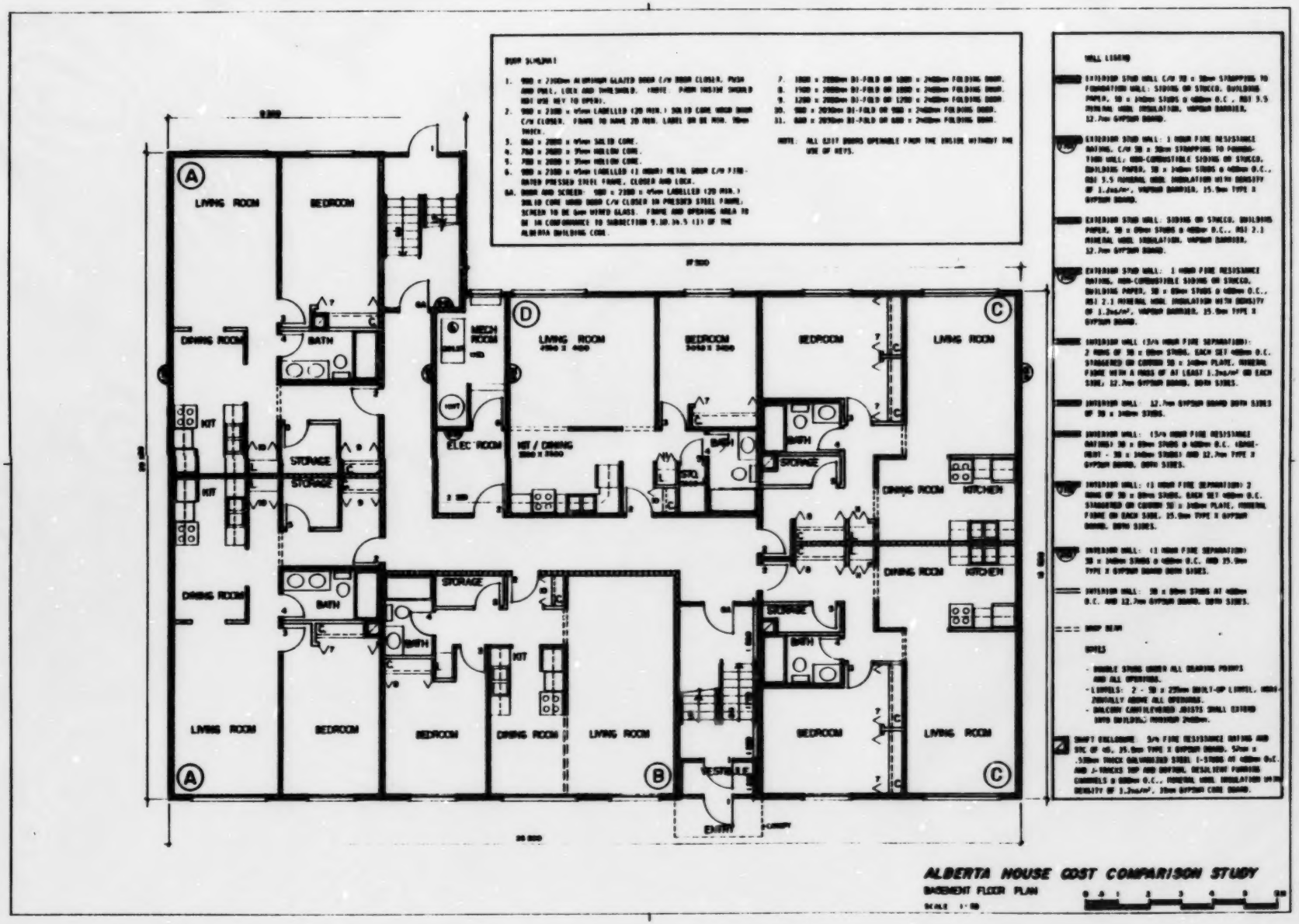
SCALE



ALBERTA HOUSE COST COMPARISON STUDY

FOUNDATION PLAN

SCALE 1:100



DOOR SCHEDULE

1. 900 x 2100mm ALUMINUM GLAZED DOOR C/W DOOR CLOSER. PUSH AND PULL, LOCK AND THRESHOLD. INSIDE PANIC INSIDE SHOULD NOT USE KEY TO OPEN).
2. 900 x 2100 x 45mm LABELLED (20 MIN.) SOLID CORE WOOD DOOR C/W CLOSER. FRAME TO HAVE 20 MIN. LABEL OR BE MIN. 35mm THICK.
5. 860 x 2000 x 45mm SOLID CORE.
6. 760 x 2000 x 35mm HOLLOW CORE.
9. 700 x 2000 x 35mm HOLLOW CORE.
6. 900 x 2100 x 45mm (LABELLED (1 HOUR) METAL DOOR C/W FIRE-RATED PRESSED STEEL FRAME, CLOSER AND LOCK.
6A. DOOR AND SCREEN: 900 x 2100 x 45mm LABELLED (20 MIN.) SOLID CORE WOOD DOOR C/W CLOSER IN PRESSED STEEL FRAME. SCREEN TO BE 6mm WIRED GLASS. FRAME AND OPENING AREA TO BE IN CONFORMANCE TO SUBSECTION 9.10.16.5 (1) OF THE ALBERTA BUILDING CODE.
7. 1800 x 2000mm BI-FOLD OR 1800 x 2400mm FOLDING DOOR.
8. 1500 x 2000mm BI-FOLD OR 1800 x 2400mm FOLDING DOOR.
9. 1200 x 2000mm BI-FOLD OR 1200 x 2400mm FOLDING DOOR.
10. 900 x 2030mm BI-FOLD OR 900 x 2400mm FOLDING DOOR.
11. 600 x 2030mm BI-FOLD OR 600 x 2400mm FOLDING DOOR.

NOTE: ALL EXIT DOORS OPENABLE FROM THE INSIDE WITHOUT THE USE OF KEYS.

WALL LEGEND

EXTERIOR STUD WALL C/W 38 x 38mm STRAPPING TO FOUNDATION WALL: SIDING OR STUCCO, BUILDING PAPER, 38 x 140mm STUDS @ 400mm O.C., RSI 3.5 MINERAL WOOL INSULATION, VAPOUR BARRIER, 12.7mm GYPSUM BOARD.

EXTERIOR STUD WALL: 1 HOUR FIRE RESISTANCE RATING, C/W 38 x 38mm STRAPPING TO FOUNDATION WALL: NON-COMBUSTIBLE SIDING OR STUCCO, BUILDING PAPER, 38 x 140mm STUDS @ 400mm O.C., RSI 3.5 MINERAL WOOL INSULATION WITH DENSITY OF 1.2kg/m³, VAPOUR BARRIER, 15.9mm TYPE X GYPSUM BOARD.

EXTERIOR STUD WALL: SIDING OR STUCCO, BUILDING PAPER, 38 x 89mm STUDS @ 400mm O.C., RSI 2.1 MINERAL WOOL INSULATION, VAPOUR BARRIER, 12.7mm GYPSUM BOARD.

EXTERIOR STUD WALL: 1 HOUR FIRE RESISTANCE RATING, NON-COMBUSTIBLE SIDING OR STUCCO, BUILDING PAPER, 38 x 89mm STUDS @ 400mm O.C., RSI 2.1 MINERAL WOOL INSULATION WITH DENSITY OF 1.2kg/m³, VAPOUR BARRIER, 15.9mm TYPE X GYPSUM BOARD.

INTERIOR WALL (1½ HOUR FIRE SEPARATION): 2 ROWS OF 38 x 89mm STUDS, EACH SET 400mm O.C. STAGGERED ON COMMON 38 x 140mm PLATE, MINERAL FIBRE WITH A RSI OF AT LEAST 1.2m²/W ON EACH SIDE, 12.7mm GYPSUM BOARD, BOTH SIDES.

INTERIOR WALL: 12.7mm GYPSUM BOARD BOTH SIDES OF 38 x 140mm STUDS.

INTERIOR WALL: (1½ HOUR FIRE RESISTANCE RATING) 38 x 89mm STUDS @ 400mm O.C. STAGGERED - 38 x 140mm STUDS AND 12.7mm TYPE X GYPSUM BOARD, BOTH SIDES.

INTERIOR WALL: (1 HOUR FIRE SEPARATION) 2 ROWS OF 38 x 89mm STUDS, EACH SET 400mm O.C. STAGGERED ON COMMON 38 x 140mm PLATE, MINERAL FIBRE ON EACH SIDE, 15.9mm TYPE X GYPSUM BOARD, BOTH SIDES.

INTERIOR WALL: (1 HOUR FIRE SEPARATION) 38 x 140mm STUDS @ 400mm O.C. AND 15.9mm TYPE X GYPSUM BOARD BOTH SIDES.

INTERIOR WALL: 38 x 89mm STUDS AT 400mm O.C. AND 12.7mm GYPSUM BOARD, BOTH SIDES.

BEAM NEAR

BEAMS

- DOUBLE STUDS UNDER ALL BEARING POINTS AND ALL OPENINGS.
- LINTELS: 2 - 38 x 235mm BUILT-UP LINTEL, UNLESS OTHERWISE NOTED.
- BALCONY CANTILEVERED JOISTS SHALL EXTEND INTO BUILDING MINIMUM 2400mm.

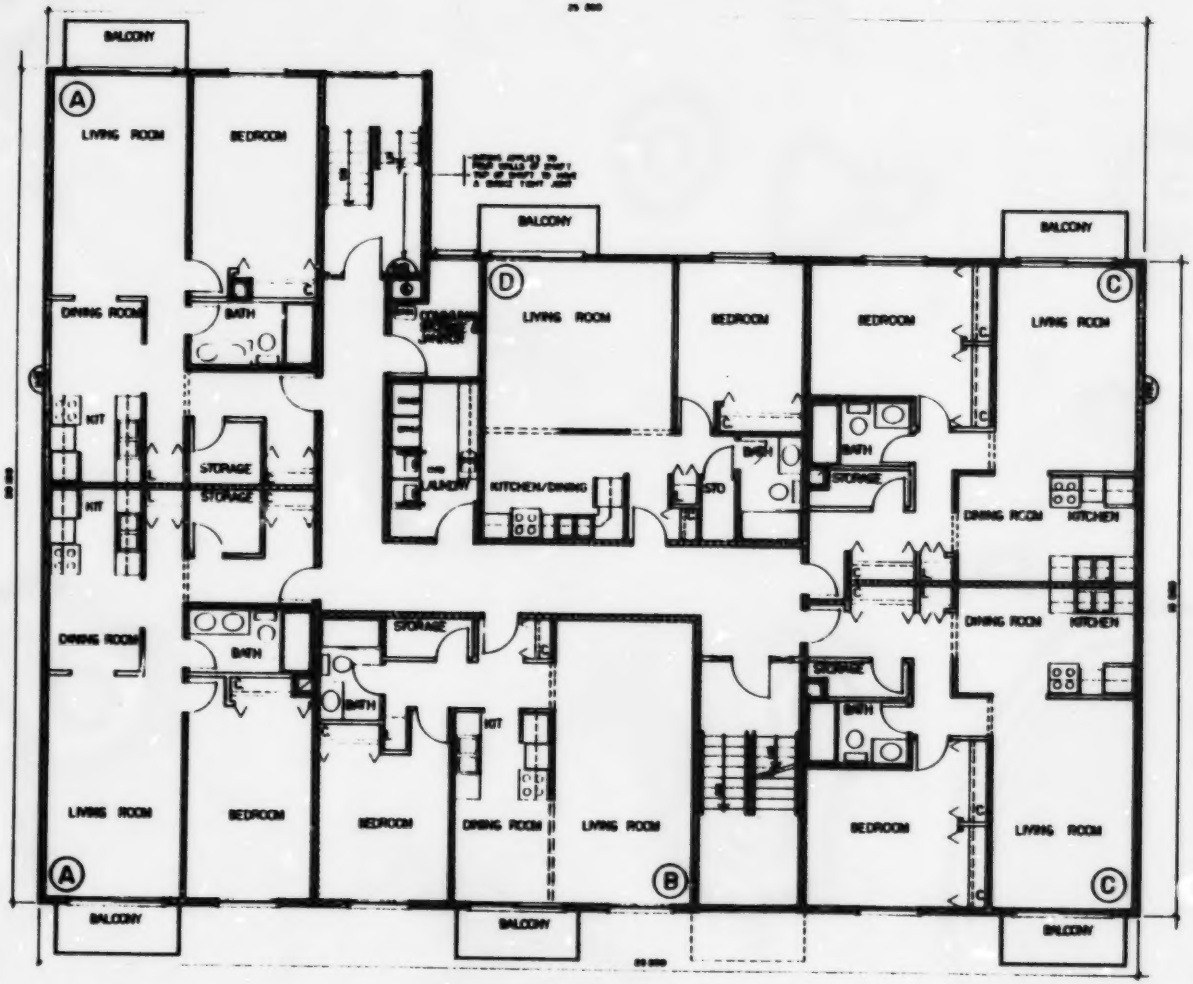
SHAFT ENCLOSURE: 1½ FIRE RESISTANCE RATING AND STC OF 45, 15.9mm TYPE X GYPSUM BOARD, 50mm x 50mm THICK GALVANIZED STEEL C-STUDS AT 400mm O.C. AND J-TRACKS TOP AND BOTTOM, RESILIENT FURRING CHANNELS @ 600mm O.C., MINERAL WOOL INSULATION WITH DENSITY OF 1.2kg/m³, 15mm GYPSUM CORE BOARD.

ALBERTA HOUSE COST COMPARISON STUDY

BASEMENT FLOOR PLAN

SCALE 1:50

0 0.5 1 2 3 4 5 6m

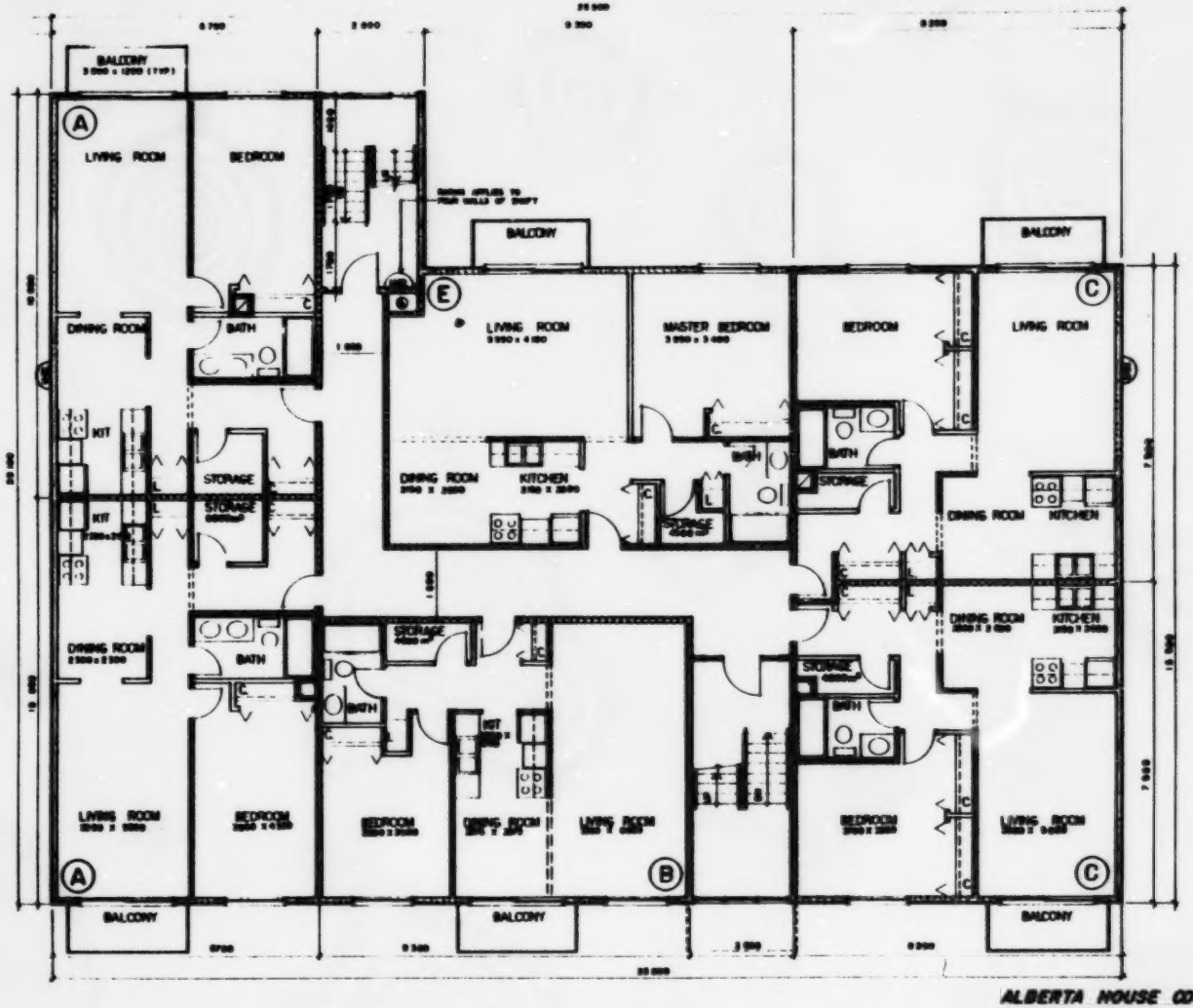


NOTE
SEE BASEMENT FLOOR PLAN FOR TYPICAL SIDE & END FOLD DOWN TYPES, SIDE & LOOPBACK

ALBERTA HOUSE COST COMPARISON STUDY

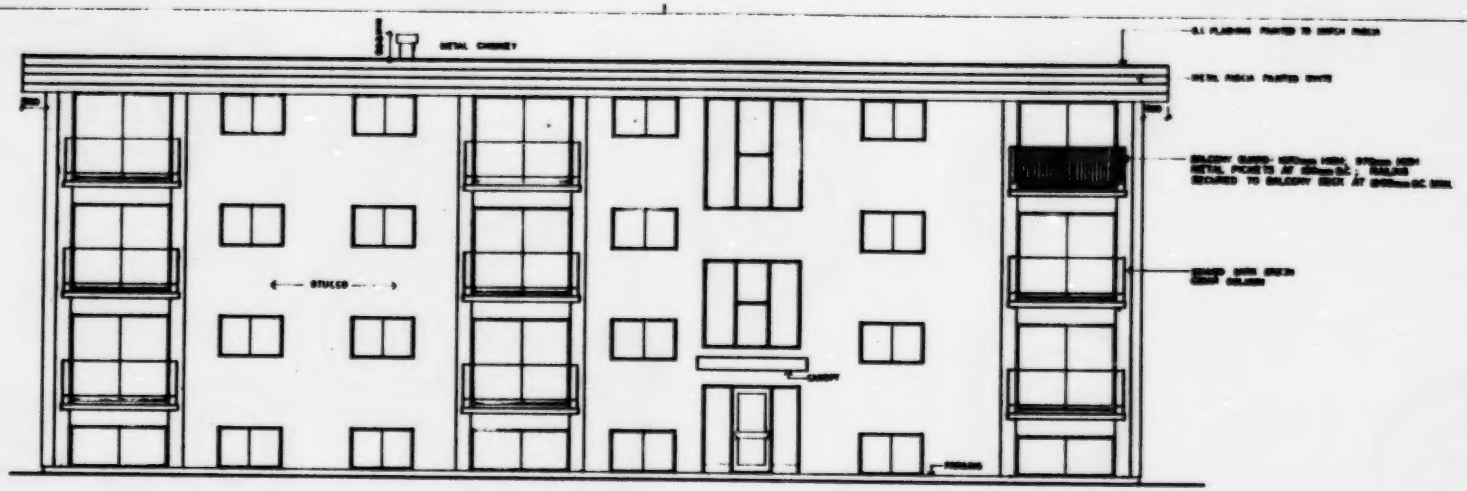
MAIN FLOOR PLAN

SCALE 1:50

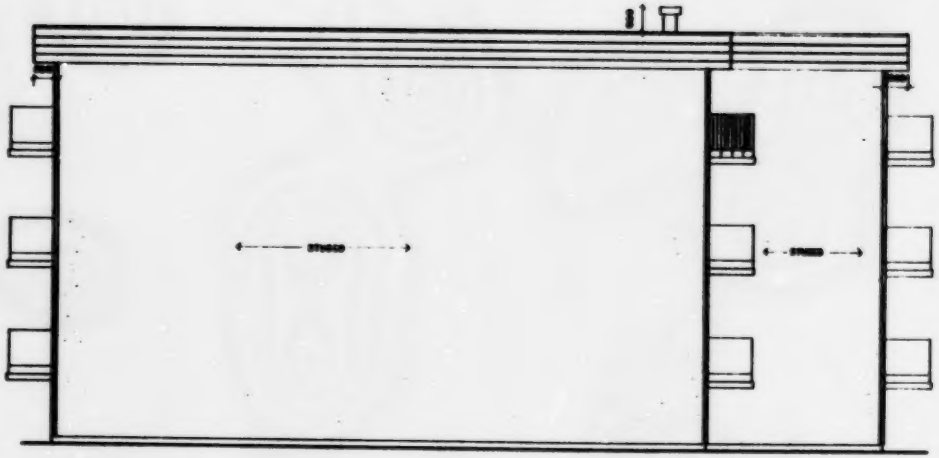


ALBERTA HOUSE COST COMPARISON STUDY

2ND & 3RD FLOOR PLAN



FRONT ELEVATION

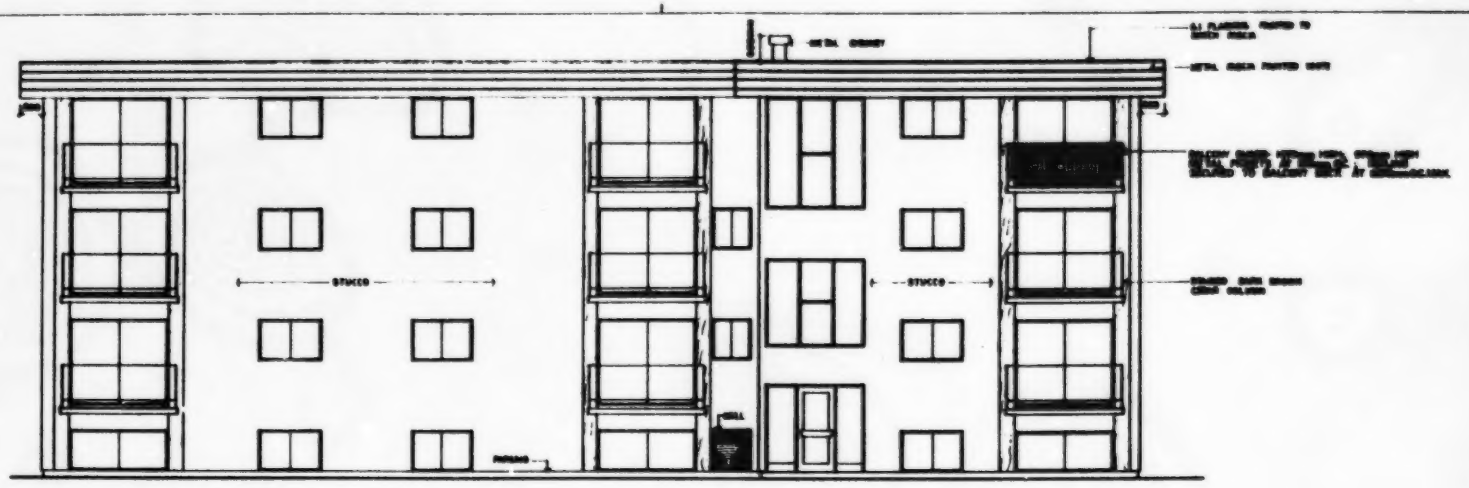


RIGHT ELEVATION

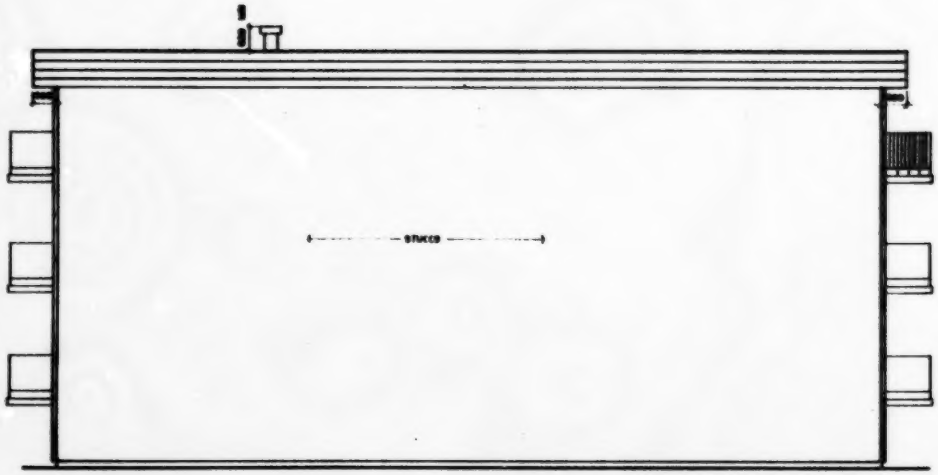
ALBERTA HOUSE COST COMPARISON STUDY

ELEVATIONS

SCALE 1:50



REAR ELEVATION

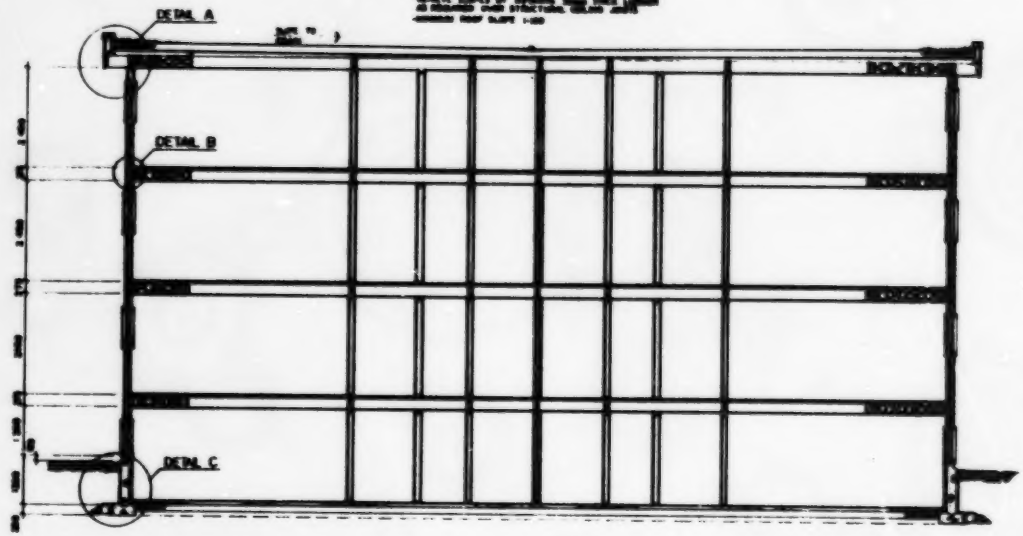


LEFT ELEVATION

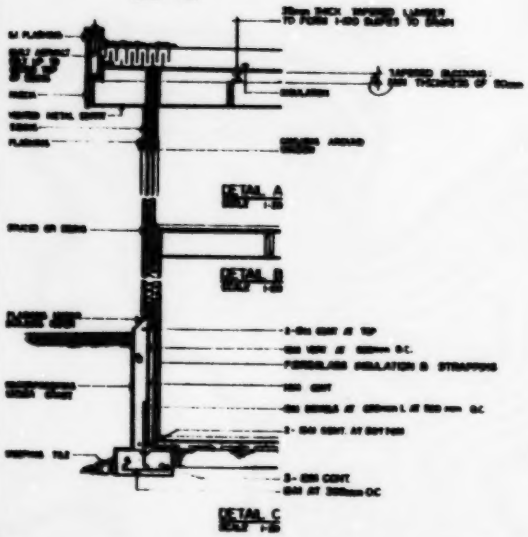
ALBERTA HOUSE COST COMPARISON STUDY

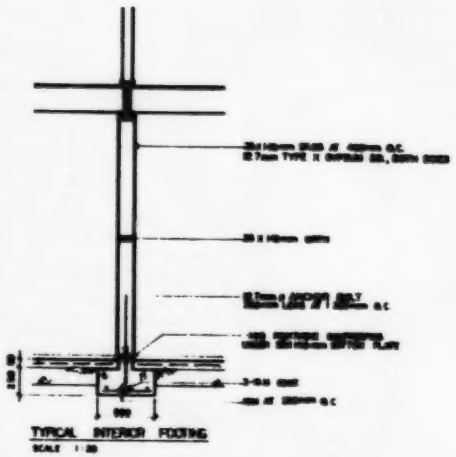
ELEVATIONS

SCALE 1:50



SECTION
SCALE 1:50





TYPICAL INTERIOR FOOTING
SCALE 1:20

ROOF CONSTRUCTION - 1 HOUR FIRE RESISTANCE RATING

- ROOFING GRAVEL
- BUILT-UP ROOFING
- RSI 5 RIGID FIBREGLASS INSULATION AND VAPOUR BARRIER
- 38mm PLYWOOD SHEATHING. ALL EDGES SUPPORTED WITH MIN. 38 x 38mm WOOD BLOCKING
- 38 x 235mm NO. 1 SPRUCE JOISTS AT 400mm O.C.
- 38 x 38mm CROSS-BRIDGING
- 15.9mm TYPE X GYPSUM BOARD

EXTERIOR WALL CONSTRUCTION

TYPE A: NO FIRE RESISTANCE RATING

- SIDING OR STUCCO
- BUILDING PAPER
- RSI 2.1 MINERAL WOOL INSULATION AND VAPOUR BARRIER
- 38 x 89mm WOOD STUDS @ 400mm O.C. (38 x 140mm WOOD STUDS @ 400mm O.C. FOR BASEMENT)
- 12.7mm GYPSUM BOARD

TYPE B: 1 HOUR FIRE RESISTANCE RATING

- SAME AS TYPE A EXCEPT MINERAL WOOL INSULATION TO HAVE DENSITY OF 1.2kg/m³; 15.9mm TYPE X GYPSUM BOARD AND STUCCO OR NON-COMBUSTIBLE SIDING

FLOOR CONSTRUCTION

- 3/4 HOUR FIRE SEPARATION AND S.T.C. RATING OF 45
- FLOOR FINISH
- 9mm PLYWOOD UNDERLAY
- 19mm T & G LUMBER OR 15.9mm PLYWOOD OR WAFERBOARD SUBFLOOR WITH MINERAL FIBRE BETWEEN JOISTS SPACED 400mm O.C.
- 38 x 235mm NO. 1 SPRUCE JOISTS AT 400mm O.C.
- 38 x 38mm CROSS-BRIDGING AT 2.3m O.C. MAX.
- RESILIENT CHANNELS
- 15.9mm TYPE X GYPSUM BOARD TYPICALLY EXCEPT FOR MECHANICAL ROOM CEILING - APPLY 2 LAYERS OF 15.9mm TYPE X GYPSUM BOARD

EXPOSED AND BEARING WALL CONSTRUCTION

- 3/4 HOUR FIRE SEPARATION AND S.T.C. RATING OF 45
- 38 x 89mm STUDS. EACH SET 400mm O.C. STAGGERED OR LOCATED 38 x 140mm PLATE. MINERAL FIBRE WITH A MASS OF AT LEAST 3.2kg/m² IN EACH SIDE
- 12.7mm GYPSUM BOARD, BOTH SIDES.

BEARING WALL CONSTRUCTION

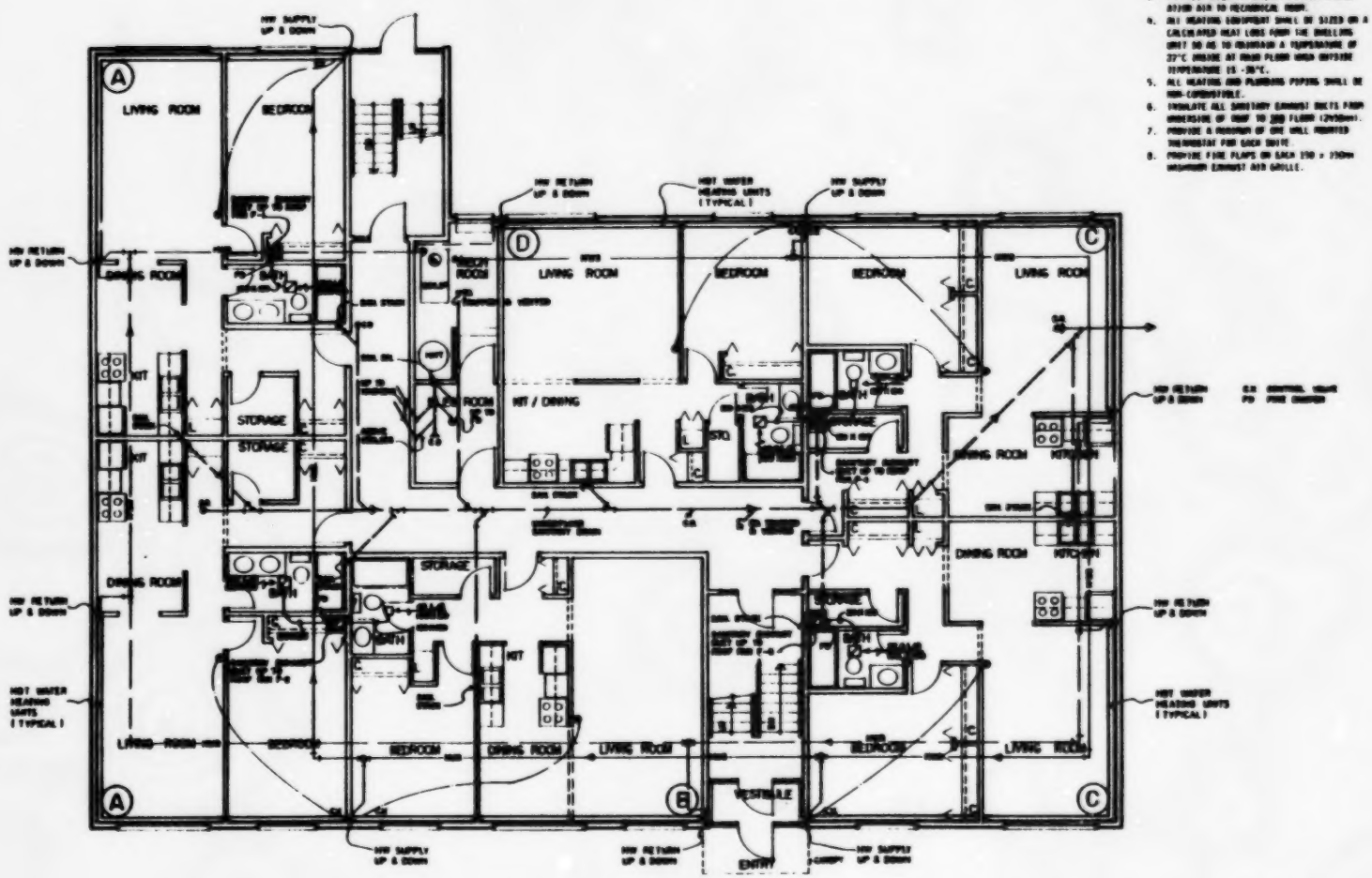
- 3/4 HOUR FIRE RESISTANCE RATING
- 38 x 140mm OR 38 x 89mm WOOD STUDS @ 400mm O.C.
- 12.7mm TYPE X GYPSUM WALLBOARD, BOTH SIDES

NOTES

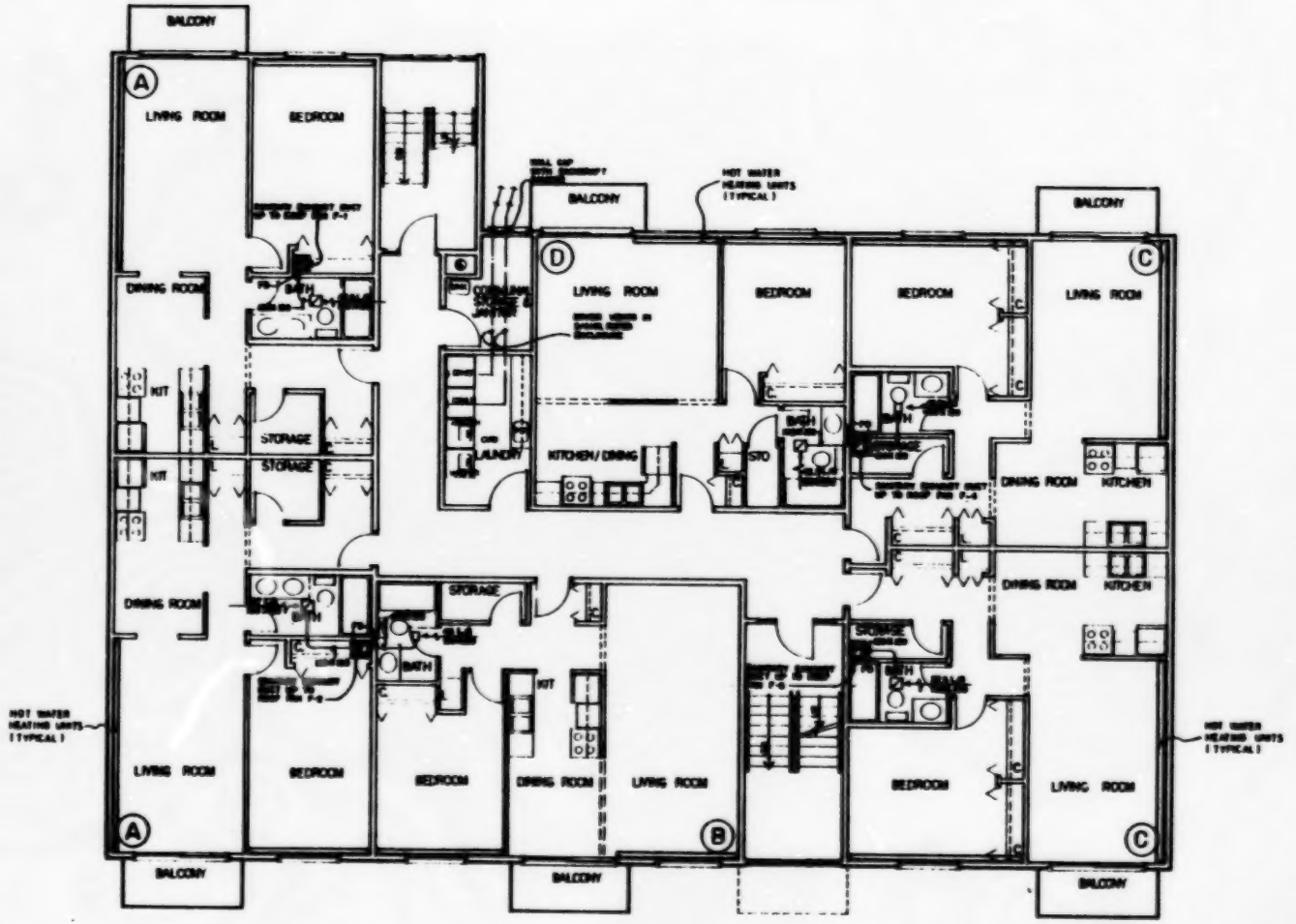
1. PROVIDE GALVANIZED STEEL, GA. .45mm AT THE HEAD OF ALL EXTERIOR OPENINGS.
2. HELPING TILES SHALL BE LAID ON UNDISTURBED OR WELL-COMPACTED SOIL SO THAT THE TOP OF THE HELPING TILE IS BELOW THE UNDERSIDE OF THE FLOOR SLAB.

ALBERTA HOUSE COST COMPARISON STUDY

SECTION & DETAILS

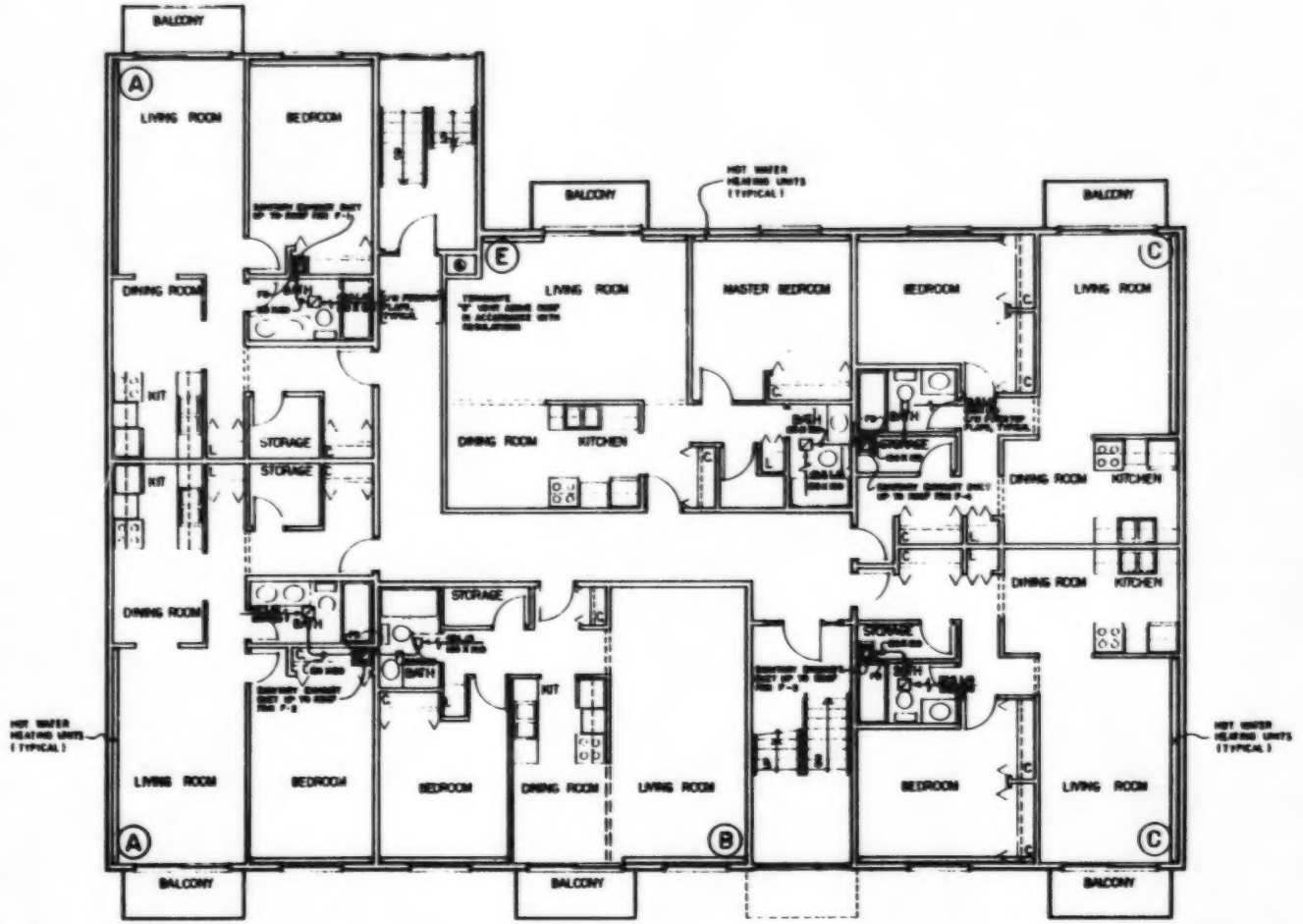


ALBERTA HOUSE COST COMPARISON STUDY



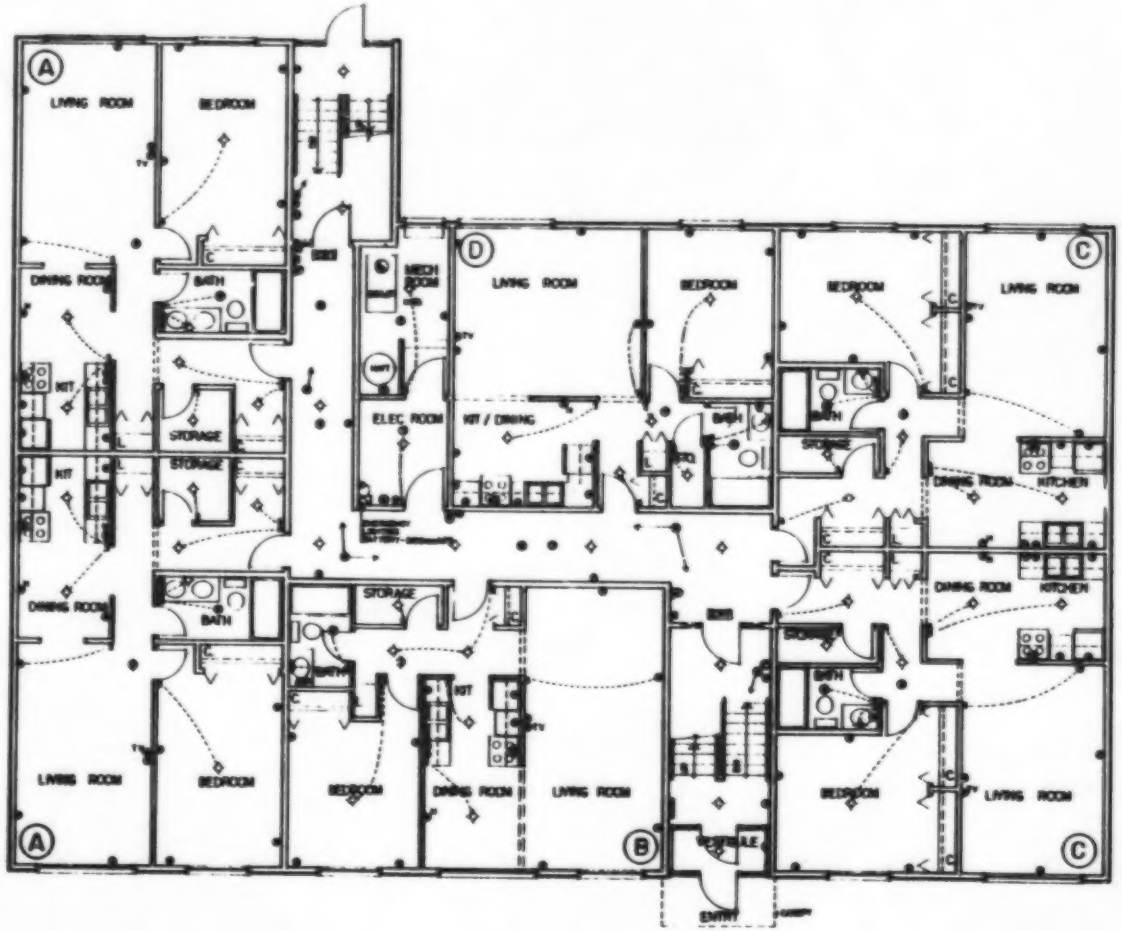
ALBERTA HOUSE COST COMPARISON STUDY

MAIN FLOOR PLAN
MECHANICAL LAYOUT



ALBERTA HOUSE COST COMPARISON STUDY

2ND & 3RD FLOOR PLAN
MECHANICAL LAYOUT
SCALE 1:50

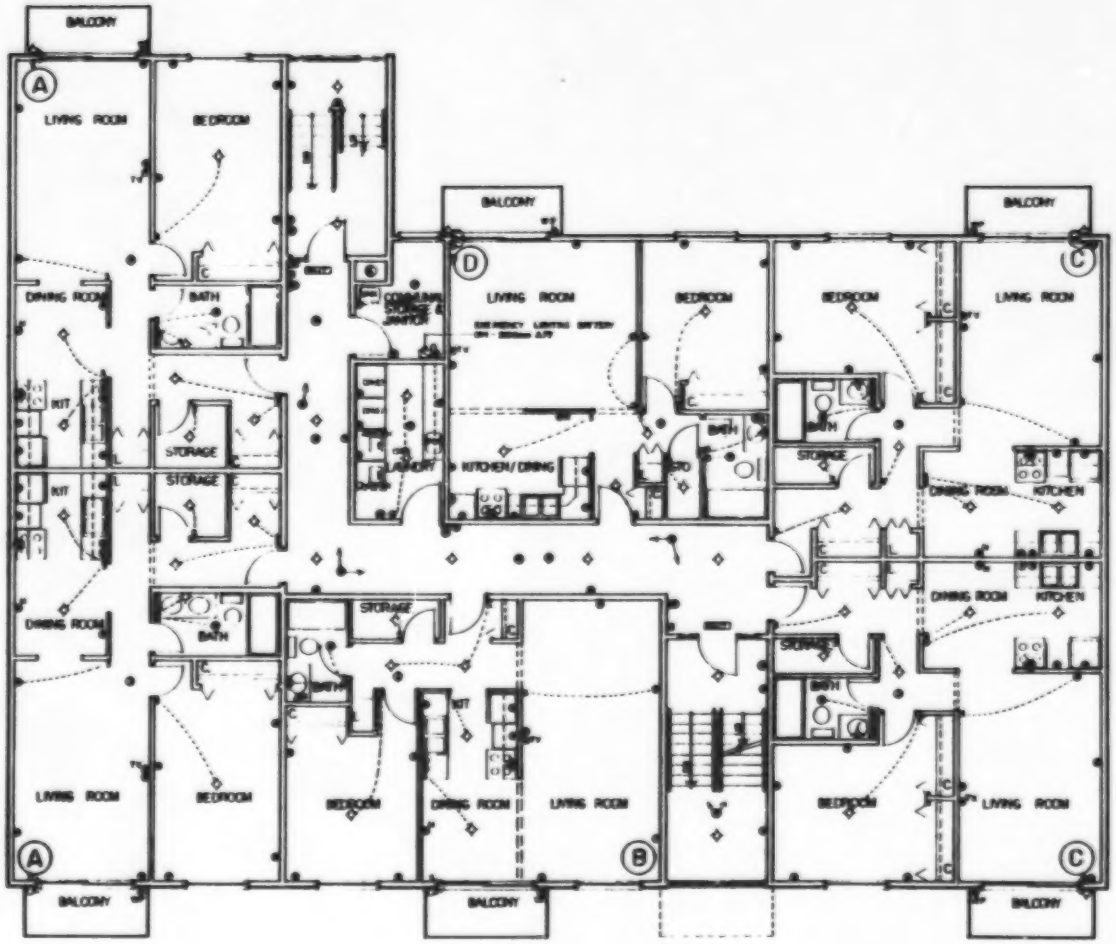


ELECTRICAL LEGEND

- EXIT LIGHTS WITH 2-25W - 120V AND 1-12V-25W EMERGENCY POWER SUPPLY
- EMERGENCY LIGHTING HEAD, 12V-12V
- EMERGENCY LIGHTING, 2 HEAD, 12V-12V
- SMOKE DETECTOR
- MANUAL FIRE ALARM STATION
- FIRE ALARM BELL, 25mm DIA-METER
- END-OF-LINE RESISTOR
- ENCASED FIRE ALARM PANEL C/W ANNUNCIATOR AND GEL CELL BATTERY AND 120V POWER SUPPLY AND AUTOMATIC CHARGER, 1 ZONE PER FLOOR, 2 ZONES - STAIRS

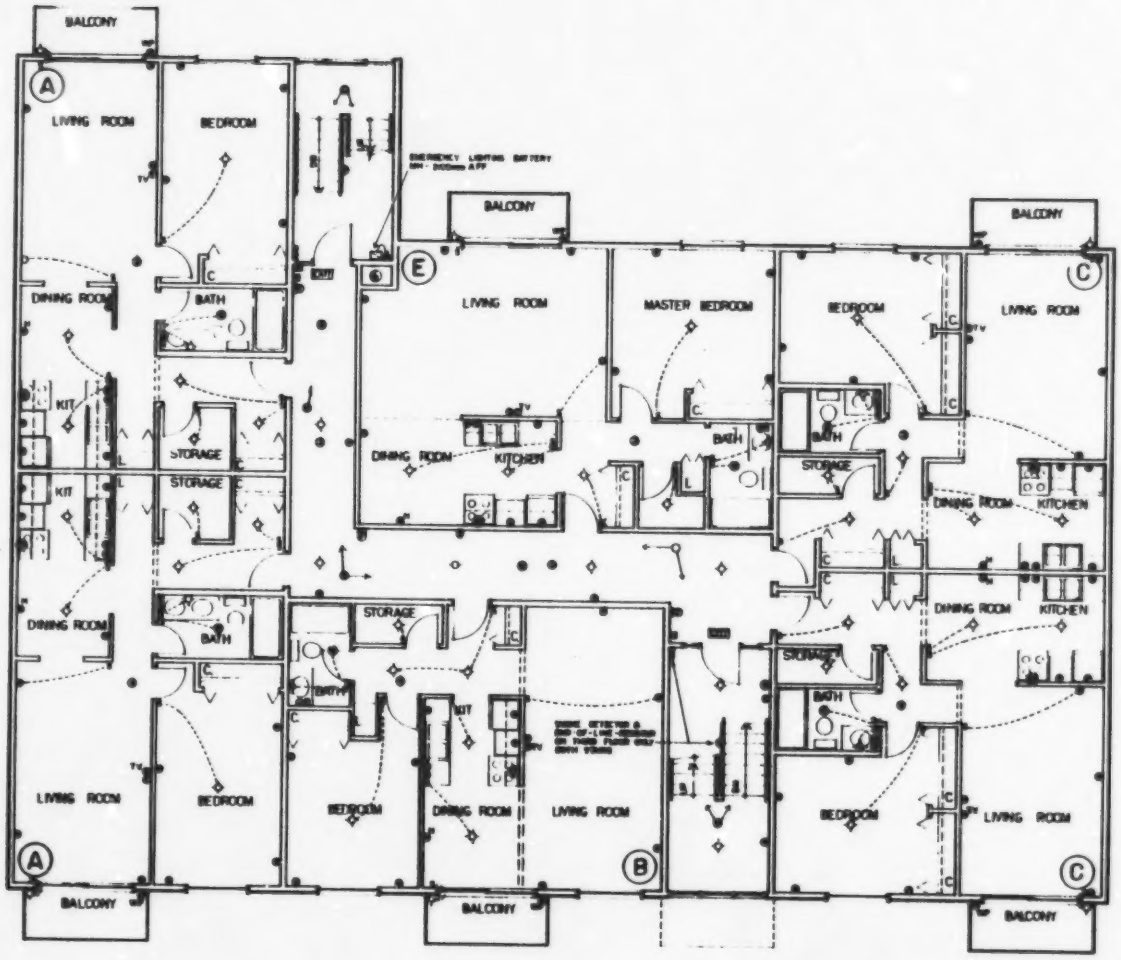
ALBERTA HOUSE COST COMPARISON STUDY

BASEMENT FLOOR PLAN
ELECTRICAL LAYOUT
SCALE 1:1



ALBERTA HOUSE COST COMPARISON STUDY

MAIN FLOOR PLAN
ELECTRICAL LAYOUT



ALBERTA HOUSE COST COMPARISON STUDY

2ND & 3RD FLOOR PLAN
ELECTRICAL LAYOUT
SCALE 1:50

APPENDIX C

Changes from 1983 Study

SINGLE-DETACHED DWELLING

This appendix notes changes made in the 1984 study as a result of updating plans, non-availability of materials or changes in standard materials used by the majority of home builders. This appendix also includes the cost of changes.

No.	Trade Div.	Item* No.	Description	Cost of Changes In 1984 Dollars Edmonton Prices
1	Concrete	2.10	Added "bases" to description.	No cost effect
2	Concrete	2.30	Added "placing" of floor joists to description.	Included in 1983 price
3	Concrete	2.40	Changed description from "slab-on-grade" to "basement slab-on-grade".	No cost effect
4	Siding	4.10	Added "including building paper" to description	Included in 1983 price
5	Roofing	5.10	Added "including flashings" to description.	Included in 1983 price
6	Roofing	5.20	Changed description from "downpipe" to "downspouts"	No cost effect
7	Carpentry	6.10	a) Changed exterior wall from "38 x 89 mm" (2"x4") to "38 x 140 mm" (2"x6").	Included in d)
			b) Added "38 x 38 mm cross strapping" to description	Included in d)
			c) Added "38 x 64 mm strapping to basement wall"	Included in d)
			d) Increased quantity from "6 MFBM" to "8 MFBM" for all the above changes	Add $ 596.00
8	Carpentry	6.50	Added "within joist" to description	No cost effect
9	Carpentry	6.60	Changed telepost diameter from "64 mm" to "73 mm"	Included in 1983 price
			Added "including 6.35 mm steel plate" to description.	Included in 1983 price
10	Doors	10.10	Changed "solid core door and frame" to "insulated metal door and wood frame".	Included in 1983 price
11	Wallboard	13.10	Added "corner bead" to description.	Included in 1983 price
12	Wallboard	13.50	Increased "RSI 2.1 (R12)" batt insulation to "RSI 3.5 (R20)"	Add $ 185.00
13	Appliances	18.10	Range (Allowance) excluded.	Less $ 405.00
14	Appliances	18.20	Electric refrigerator (Allowance) excluded.	Less $ 540.00
15	Electrical	21.20	Added smoke detectors to description.	Included in 1983 price
16	Windows	8.	Extra cost on windows to fit in "38 x 140 mm" (2" x 6") wall.	Add $ 85.00
			TOTAL NET CHANGE (Deduction)	Less $ 79.00

Note: *These item numbers refer to the detailed cost estimates in the trade divisions. See Section 4.0 in the report on the single-detached dwelling.

WALK-UP APARTMENT

This appendix notes changes made in the 1984 study, as a result of updating plans, non-availability of materials or changes in standard materials used by the majority of home builders. This appendix also includes the cost of changes.

No.	Trade Div.	Item* No.	Description	Cost of Changes in 1984 Dollars Edmonton Prices
1	Roofing	5.10	Revised description and added "flashings"	Included in 1983 price
2	Roofing	5.11	Deleted "flashing" as it is included in roofing	Same as last year
3	Roofing	5.30	Changed "50 mm thick rigid insulation" to "RSI 6 (R34) batt insulation in joist space	Less $ 3,410.00
4	Carpentry	6.20	Increased quantity from "35 MFBM" to "44 MFBM"	Add $ 3,555.00
5	Windows	8.20	Changed description from "wood frame" to "steel frame"	Add $ 673.00
			Added "with wired glass" to description.	Included above
6	Doors	10.06	Changed description for firerated door 20 min. label	Included in 1983 price
7	Doors	10.09	Added "20 min. label" to description	Add $ 250.00
8	Wallboard	13.10	Increased quantity from "2,661 m2" to "3,945 m2"	Add $ 5,110.00
9	Wallboard	13.13	Decreased quantity from "2,466 m2" to "695 m2"	Less $ 8,200.00
10	Wallboard	13.14	New item "15.9 mm thick wallboard" added	Add $ 2,469.00
11	Wallboard	13.15	New item "wallboard to shaft enclosure" added.	Add $ 458.00
12	Wallboard	13.16	Increased wallboard thickness from "13 mm" to "15.9 mm".	Add $ 830.00
			Decreased quantity from "1,891 m2" to "1,887 m2"	Less $ 26.00
13	Wallboard	13.17	New item "2 layers of wallboard to ceiling" added.	Add $ 44.00
14	Specialties	17.70	Decreased railing height from "1,070 mm" to "970 mm"	Less $ 245.00
15	Plumbing	19.10	Added "roof drains" to the description	Included in 1983 price
16	Electrical	23.10	Added "fire alarm system" to description	Included in 1983 price
			TOTAL NET CHANGE (Addition)	Add $ 1,508.00 or $ 63.00/unit

Note: *These item numbers refer to the detailed cost estimates in the trade divisions. See Section 4.0 of the report on the Walk-Up Apartment.